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SUPPLEMENTAL DATA TO FOLDER 5 IN SET #126

	Changes have been made on Emerson Models 669B, 675B, 688B, 689B, 690B, 692B, 693B, 694B and 697B using Chassis 120129B, 120129D. NOTE: Emerson Chassis modifications are identified by a progressive system of capital letters inside the code triangle, therefore, code triangle "C" would include the modifications of triangle "A" and "B".
Triangle "A"	The following changes were made to chassis 120129B,D coded triangle "A", to improve sync stability in weak signal areas. R71 was removed and replaced by a 4700Ω ½ watt in series with a 200Ω ½ watt resistor. The 4700Ω resistor was connected to pin #6 of V-14 C65 was removed from pin #6 of V14 and connected to the junction of the 4700Ω resistor and the 2200 ohm resistor. R117 was changed to 1000 ohms.
Triangle "B"	In chassis coded triangle "B" added changes were made to improve sync stability. R77 was changed to 330Ω ½ watt. R117 was changed back to original value 1500Ω ½ watt.
Triangle "C"	Chassis 120129B, D coded triangle "C" incorporated changes to reduce vertical size which had become excessive due to component tolerance. R86 was changed to 150KΩ . R93 was changed to 220KΩ .
Triangle "D"	Chassis 120129B, D coded triangle "D" incorporated changes to improved vertical interlace. The 270MMF capacitor connect to lugs #3 and #5 of the Deflection Yoke was omitted. A .047MF 400 volt capacitor has been added from Pin #6 of V-3 to chassis. A jumper has been added from lug #6 of Deflection yoke to junction of C92, C93, L23 and R111.
Triangle "E"	The removal of the 270MMF capacitor in code triangle D caused excessive rippling of horizontal scaning lines, therefore in chassis code triangle "E" this capacitor was reinstalled.
Triangle "F"	Chassis code triangle "F" the AGC circuit was changed. Partial schematic of the new AGC is shown on reverse side
Triangle "G"	Chassis 120129B,D, code Triangle G incorporate the addition of an 10K, 2 watt resistor from the junction of C1 and L1 to junction of red white of T6. This is only used on "G" code chassis and will not be incorporated in chassis of a later code. When replacing a kinescope on a Triangle G stamped chassis it may be necessary to remove this resistor to maintain the proper focusing range. Cont. on reverse side

EMERSON MODELS 669B, 675B, 688B, 689B, 690B, 692B, 693B, 694B, 697B, (Ch. 120129B, 120129D)

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 13 IN SET #170

	In later production of Stromberg-Carlson Models 421DCM, 421CM, 421TX the following circuit changes were incorporated to imporve Vertical Hold and broaden control action. A 100KΩ resistor was connected between Pin 5 of the Sync Phase Inv. (V14) and R76. R79 was changed to 1Meg. A 2Meg resistor was connected in parallel with R2 (Vertical Hold Control).

STROMBERG-CARLSON MODELS 421CDM, 421CM, 421TX

PRODUCTION CHANGES
BULLETIN 47

PRODUCTION CHANGES
BULLETIN 47

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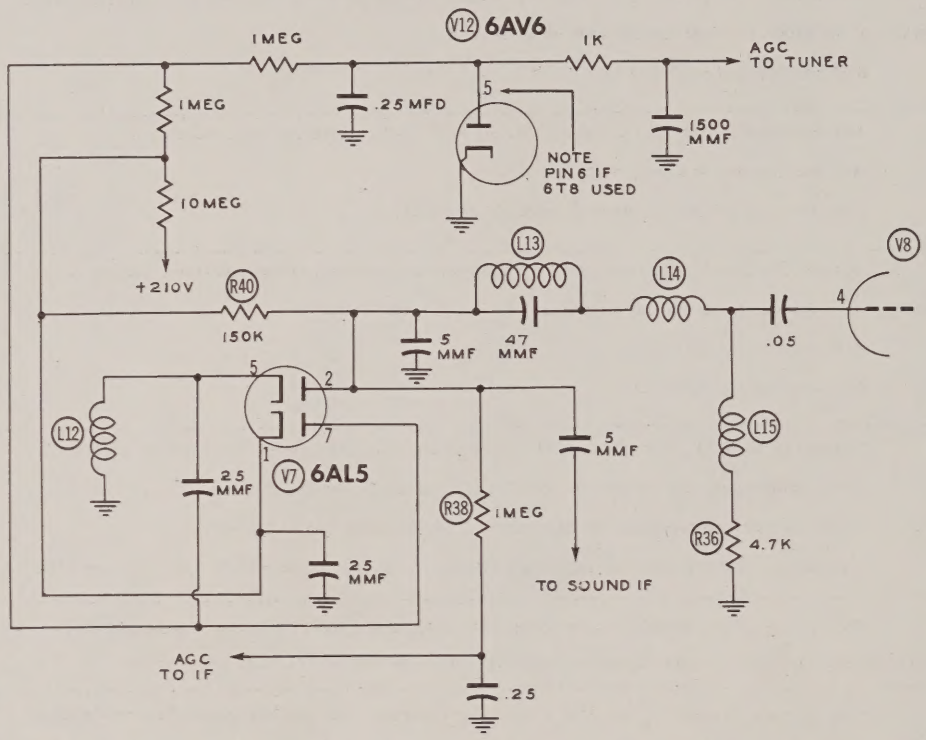
Code "K" or "Q"	Chassis coded with the letter "K" or "Q" to the right of the code triangle uses a new (low radiation with an improved noise factor) turret tuner. This tuner has one additional blue lead which is connected to the B+ 170 volt point (junction of R116, R115) through a 470 ½ watt resistor. All other connection on the same. The alignment procedure for the tuner remains the same as in Folder 3 in Set #109. "K" code chassis uses a 6BK7 as the RF amp. "Q" code chassis uses a 6BQ7 as the RF amp. These tubes are not interchangeable.



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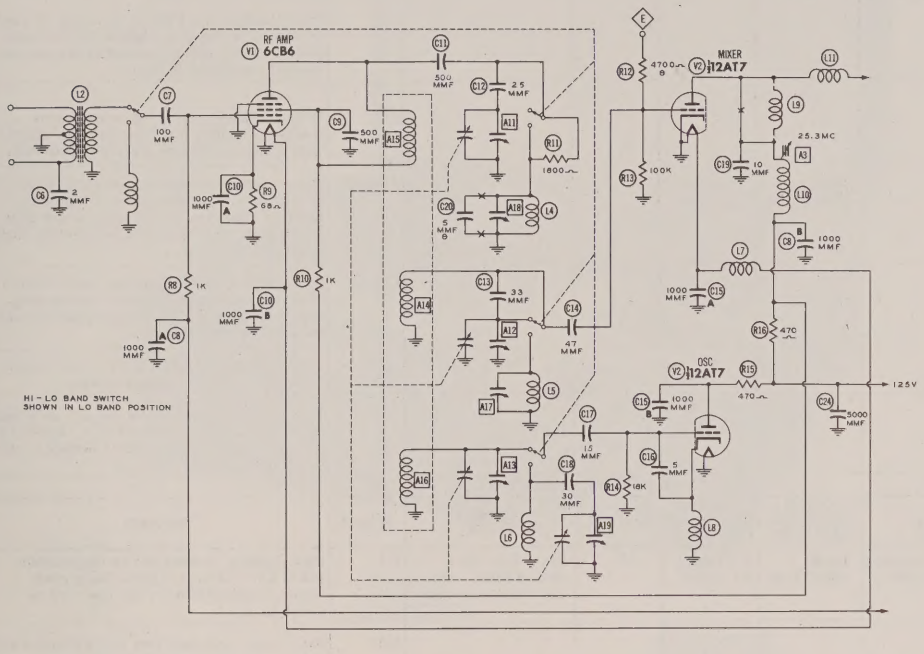
Sylvania Model 1110X, Ch. 1-329 is similar to Model 1210X, Ch. 1-381. Circuitwise, chassis 1-329 differs from Ch. 1-381 in that a new type RF tuner is used and the high voltage scan circuit has been modified to eliminate the heater isolation transformer for to 6W4GT Damper tube. Also, V13 and V17 are 6SN7 instead of 12AU7 but the associated circuits remain the same.

A partial schematic for the new RF tuner is shown below and followed by Alignment instructions for the tuner only. Alignment for the Video IF and sweep circuits refer to Folder 16, Set 128.



Code C01

Model 1110X, Chassis 1-329, Code C01 have the following changes:

Remove C33A and C33B (.004MFD-450V. dual ceramic capacitor - Part #168-0003D).

Change C82 from Mica Capacitor .00047MFD- 1000 V. to paper capacitor .00075MFD-1600V. Part #162-16375.

Code C02

Model 1110X, Chassis 1-329, Code C02, the sound IF limiter circuit was revised.

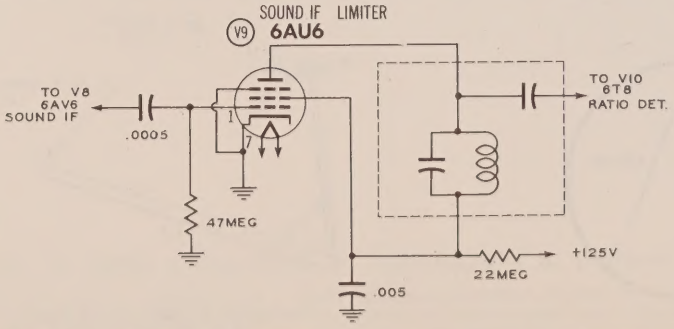
Remove C45 (.004MFD-450V. dual ceramic capacitor) part #168-003D.

Remove R46 (330 ohms $\frac{1}{2}$ watt) part #181-0031.

Add .005MFD-500V. ceramic capacitor (Part #166-5000D) as a screen grid bypass on V9-6AU6.

Return cathode on V9-6AU6 to ground.

Partial schematic shows the new Sound IF Limiter circuit.



SYLVANIA MODEL 110X (Ch.1-329)

(CONTINUED ON NEXT PAGE)

RF TUNER ALIGNMENT (CHASSIS 1-329)

The use of two marker generators is required to align this tuner. Marker generator #1 is connected thru a 500MMF capacitor to the vertical input lead of the oscilloscope. This marker is tuned to 21.9MC and is used to provide a reference marker on the response curve. Marker generator #2 is connected (thru a 2 or 3MMF capacitor) across the sweep generator at the antenna terminals.
If the sweep generatro has a built-in marker it will be used for marker #2.
Remove the First Video IF Amp. tube (V3) and connect a 150Ω resistor across its grid resistor (R20).
During alignment of this tuner loading of the various circuits is required. Loading may be accomplished by touching the point referred to with the blade of a small screwdriver and placing the finger on the metal shank.
Connect the negative lead of a 2 volt battery to the tuner AGC terminal (terminal 2 on terminal strip) connect the positive lead to chassis.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

LOW BAND ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	85MC (10MC Swp)	83.25MC 87.75MC	6	Vert. amp. thru 5KΩ to point E . Low side to chassis.	A11	Place loading screwdriver on stator of second section from rear of tuning gang. Adjust A11 so single peak occurs centered between the markers.
2.	"	"	"	"	"	"	A12	Place loading screwdriver on stator of rear section of tuning gang. Adjust A12 so single peak response appears centered between the markers as shown in fig. 1.
3.	"	"	"	"	"	"	A13	Without loading adjust A13 so the sound marker coincides with the reference marker with sound and picture markers above 70%.
4.	"	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"	A14	Place loading screwdriver on stator plates of rear section of tuning gang. With a non-metallic pick vary turn spacing of A14 until single peak occurs midway between the markers as shown in fig. 1.
5.	"	"	"	"	"	"	A15	Place loading screwdriver on stator plates of second section from rear of tuning gang. Adjust turns of A15 until single peaks occurs centered between markers.
6.	"	"	"	"	"	"	A16	Without loading adjust A16 so sound marker coincides without reference marker.
7.	"	"	"	"	"	"		Adjust spacing between A14 and A15 until the valley in top of response curve is exactly 30% of total. Repeat steps 1 thru 7 needed to obtain proper overall response.

HIGH BAND ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. thru 5KΩ to point E . Low side to chassis.	A17	Place loading screwdriver on ungrounded end of L4. Adjust A17 until single peak occurs centered between the markers as shown in fig. 1.
9.	"	"	"	"	"	"	A18	Place loading screwdriver on ungrounded end of L5. Adjust A18 so single peak occurs centered between the markers.
10.	"	"	"	"	"	"	A19	Without loading adjust A19 until sound marker and reference marker coincide.
11.	"	"	"	"	"	"		If either marker falls below 70% increase the coupling between L4 and L5 by decreasing the angle between the coils. Refer to fig. 2.
12.	"	"	177MC (10MC Swp)	175.25MC 179.75MC	7	Vert. amp. thru 5KΩ to point E . Low side to chassis.	L6	Adjust coil turns so sound marker and reference marker coincide on response curve.
13.	"	"	"	"	"	"	L5	Place loading screwdriver on ungrounded lead of L4. Adjust L5 so single peak occurs centered between the markers.
14.	"	"	"	"	"	"	L4	Place loading screwdriver on ungrounded end of L5. Adjust L4 so single peak occurs centered between markers.
15.	"	"	"	"	"	"	L6	Without loading retouch L6 turns so sound marker coincides with reference marker. If the valley in the response curve is more or less than 30% adjust the angle between L4 and L5 (fig. 2) until the valley is exactly 30% of total response. Repeat steps 8 thru 15 as needed to obtain optimum response on both Channels 7 & 13.

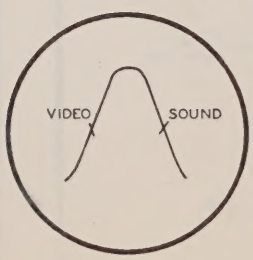


FIG. 1

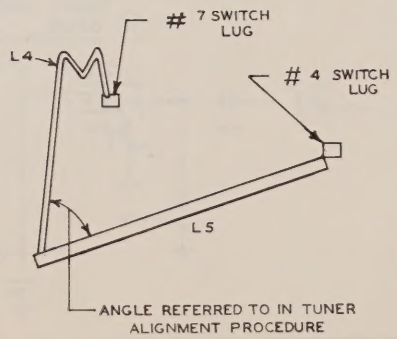


FIG. 2

AIRLINE
MODEL 25GAA-935B

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AIRLINE
MODEL 25GAA-935B

AIRLINE
MODEL 25GAA-935B

TRADE NAME	Airline Model 25GAA-935B
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	AC Operated Audio Amplifier with 3 Speed Manual Player
TUBES (Three)	Types 12AV6 AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .250 Amp. @ 117 Volts AC

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		AIR LINE PART No.	STANDARD REPLACEMENT		
V1A	AF Amplifier	12AV6	12AV6	7BT	
B	AF Amplifier	12AT6	12AT6	7BT	
V2	Audio Output	50C5	50C5	7CV	
V3	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	AIR LINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	40	150	1010A			EZ44315C			TVL-4420	
B	40	150								
C	20	150								
D	20	25								
C2	10000		†	S110000	D6-103	TM5S1	GP2-333-103	UC-511	5HK-S1	Note 1
C3	10000		ǂ 814	S110000	D6-103	TM5S1	GP2-333-103	UC-511	5HK-S1	
C4	.01	600	825	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C5	.1	200		P288-1	DF-104	PJ2P1		PT401	2TM-P1	Note 2

Note 1. Some Models omit R4 and use capacitor only (Part #824)
Note 2. Some Models use .05MFD in this application (Part #803)
† Items C2 and R4 are combined in one unit.
ǂ Items C3 and R5 are combined in one unit.

CONTROLS

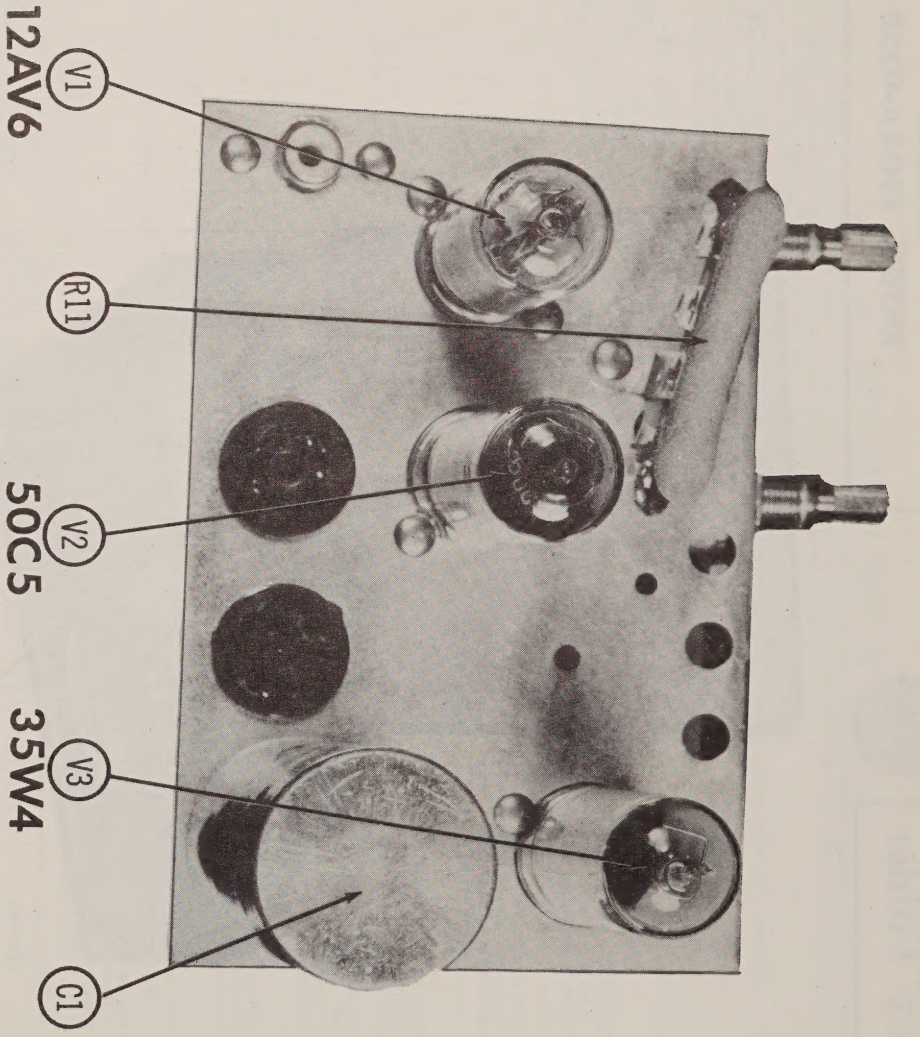
ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AIR LINE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	401	Q13-133	AG-60-Z	BSK-60-S	U-48	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A
R2A	500KΩ	½	408	Q13-133	AG-60-Z	BSK-60	U-48	Tone
B	Shaft		Not req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R2A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES	ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	AIR LINE PART No.	IRC PART No.			OHMS	WATT	AIR LINE PART No.	IRC PART No.	
R3	510KΩ	½	502			R8	150Ω	½	505	BTS-150	
R4	5Meg	½	†		Note 1	R9	270Ω	1	602	BTA-270	
R5	100KΩ	½	ǂ 814	BTS-100K		R10	1000Ω	½	539	BTS-1000	
R6	1Meg	½	516	BTS-1Meg		R11	120Ω	7.5	601	1 3/4A-125	
R7	510KΩ	½	502			R12	30Ω	½	534		
						R13	510KΩ	½	502		Note 2

† Items R4, C2 are combined in one unit.
ǂ Items R5, C3 are combined in one unit.
Note 1. Some models omit R4 and use capacitor only (Part #824)
Note 2. Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		AIR LINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	2.3KΩ	3.2Ω	166Ω	.43Ω	Part of spkr.	A-3332 ①	A-2928 ①	RO-2 ①	S-1X ①	① Bend mtg. tabs down, file out slots, mount on orig. mtg. bracket.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	AIR LINE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.2Ω	SP-40	ST-113 Mod. P4-X	4A07	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							REMARKS
	AIR LINE PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1A	60H29	AC-AG-J	A-AG	W26B	A661J	33	0-2 or S-2	
B	60H21	AC-AG-J	A-AG	W26B	A661J	33	0-2 or S-2	

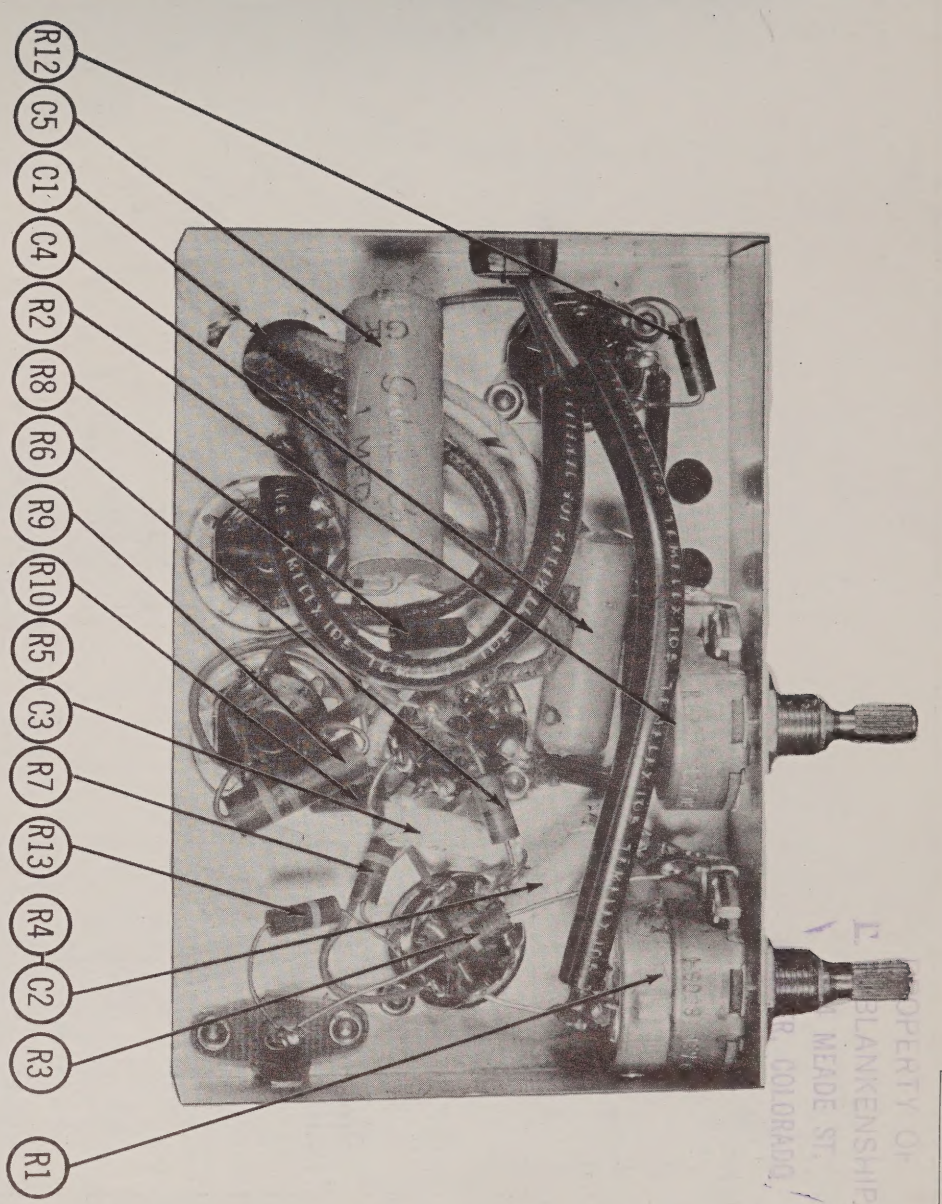
ASTATIC, SHURE AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	AIR LINE PART No.	WALCO PART No.	JENSEN PART No.	
M2A	61H31	W-5AGA or W-5AGS	A-852 or A-752	
B	61H15	W-20AGA or W-21AGS	E-902 or E-964	

CHASSIS—BOTTOM VIEW



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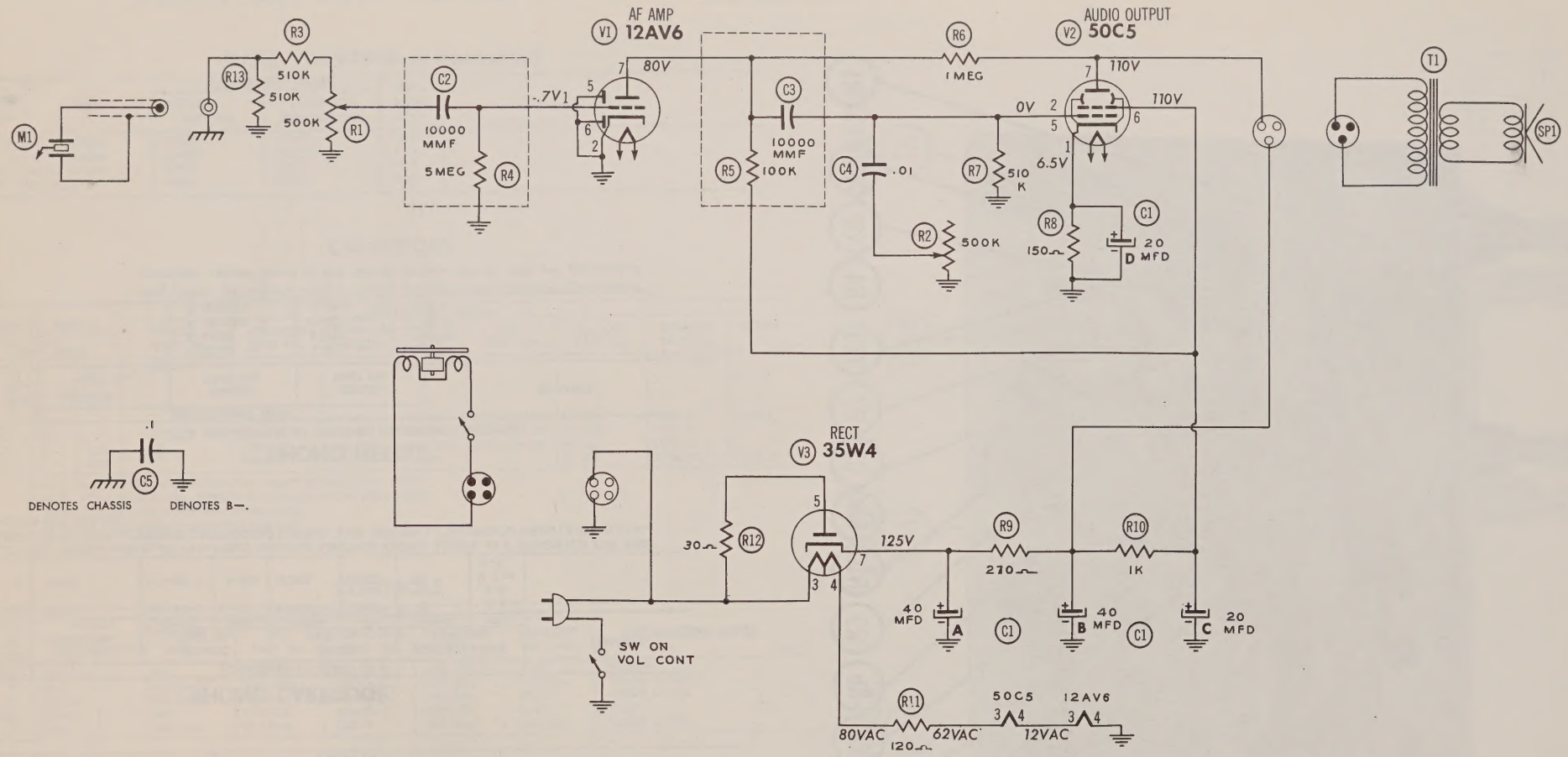
AIR LINE MODEL 25GAA-935B



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AV6	5Meg	0Ω	12Ω	0Ω	0Ω	0Ω	†100KΩ
V 2	50C5	150Ω	510KΩ	62Ω	12Ω	510KΩ	†1.3KΩ	†436Ω
V 3	35W4	INF	INF	207Ω	172Ω	134Ω	189Ω	45KΩ

† MEASURED FROM PIN 7 OF V3.

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC voltages measurements are at 20,000 ohms per volt, AC voltages measured at 1000 ohms per volt .
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

PHOTOFACT* Folder

*TRADE MARK

APEX MODELS 817, 920, 924, 9120, 9121, 9820, 9820B, 9821

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Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL 9120

APEX MODELS 817, 920, 924, 9120, 9121, 9820, 9820B, 9821

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DATE 10-52 SET 181 FOLDER 3

APEX MODELS 817, 920, 924, 9120, 9121, 9820, 9820B, 9821

APEX 9120

TRADE NAME	APEX Models 817, 920, 924, 9120, 9121, 9820, 9820B, 9821.
MANUFACTURER	APEX Television Corp., 1926 Broadway, New York, N. Y.
TYPE SET	Television Receiver
TUBES	Nineteen
POWER SUPPLY	110-120 Volts AC - 60 Cycle — RATING 1.94 Amp. @ 117 Volts AC
TUNING RANGE—	Channels 2 thru 13

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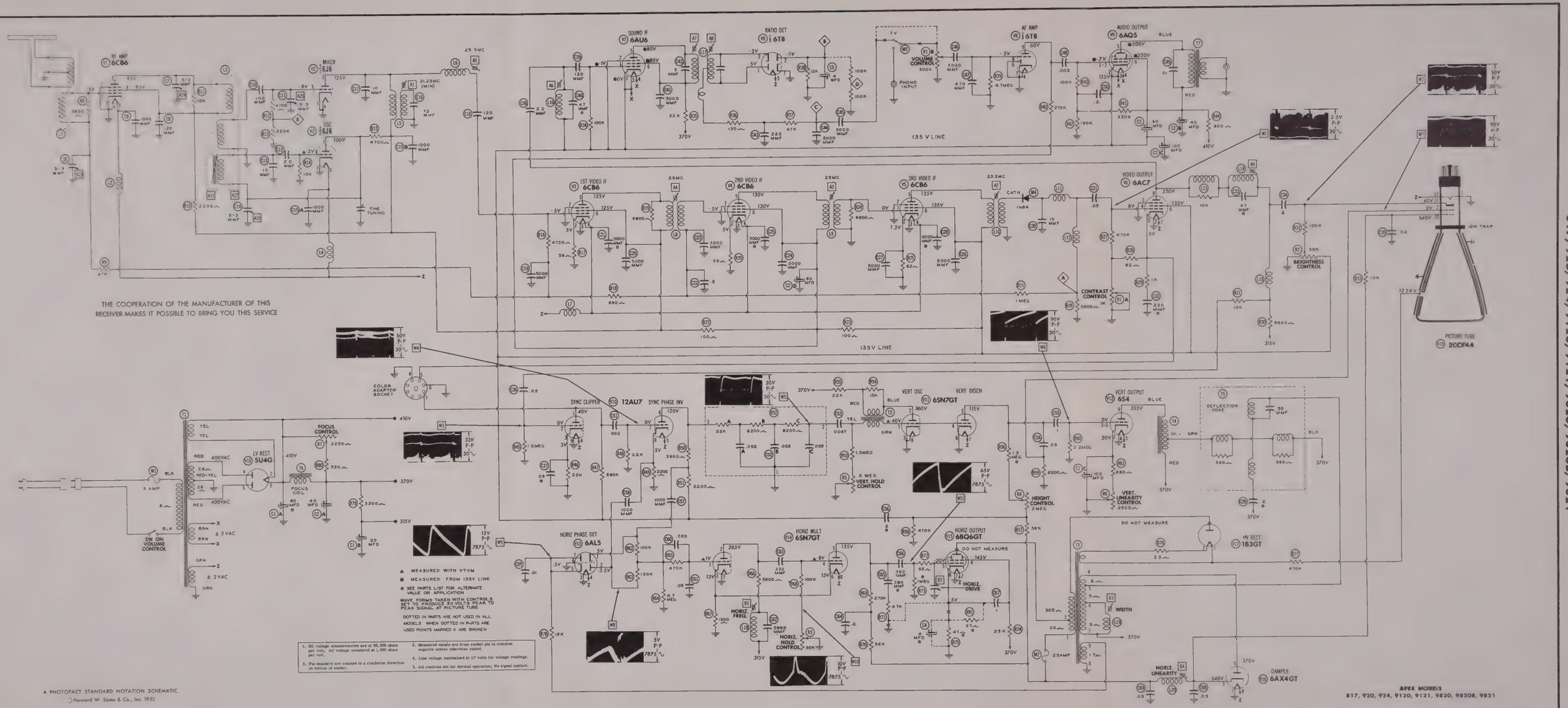
APEX MODELS 817, 920, 924, 9120, 9121, 9820, 9820B, 9821


RF AMP V1 6CB6
MIXER V2 6J6
OSC V2 6J6
SOUND IF V7 6AU6
RATIO DET V8 6T8
AF AMP V9 6T8
AUDIO OUTPUT V9 6AQ5
1ST VIDEO IF V3 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 6CB6
VIDEO OUTPUT V6 6AC7
PICTURE TUBE V13 20CP4
VOLUME CONTROL
PHONO INPUT
135 V LINE
CONTRAST CONTROL
BRIGHTNESS CONTROL
ION TRAP
12.5KV
COLOR ADAPTOR SOCKET
SYNC CLIPPER V10 12AU7
SYNC PHASE INV
VERT OSC V11 6SN7GT
VERT DISCH
VERT OUTPUT V12 6S4
DEFLECTION YOKE
VERT. LINEARITY CONTROL
HEIGHT CONTROL
HORIZ PHASE DET V13 6AL5
HORIZ MULT V14 6SN7GT
HORIZ OUTPUT V15 6BQ6GT
HORIZ. DRIVE
HORIZ. FREQ.
HORIZ. HOLD CONTROL
WIDTH
HORIZ. LINEARITY
DAMPER V16 6AX4GT
HV RECT V17 1B3GT
DO NOT MEASURE
FOCUS CONTROL
FOCUS COIL
LV RECT V18 5U4G
SW ON VOLUME CONTROL
FINE TUNING
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
▲ MEASURED WITH VTVM
■ MEASURED FROM 135V LINE
● SEE PARTS LIST FOR ALTERNATE VALUE ON APPLICATION
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 80 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN
1. DC voltage measurements are at 20,000 ohms per volt; AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; No signal applied.
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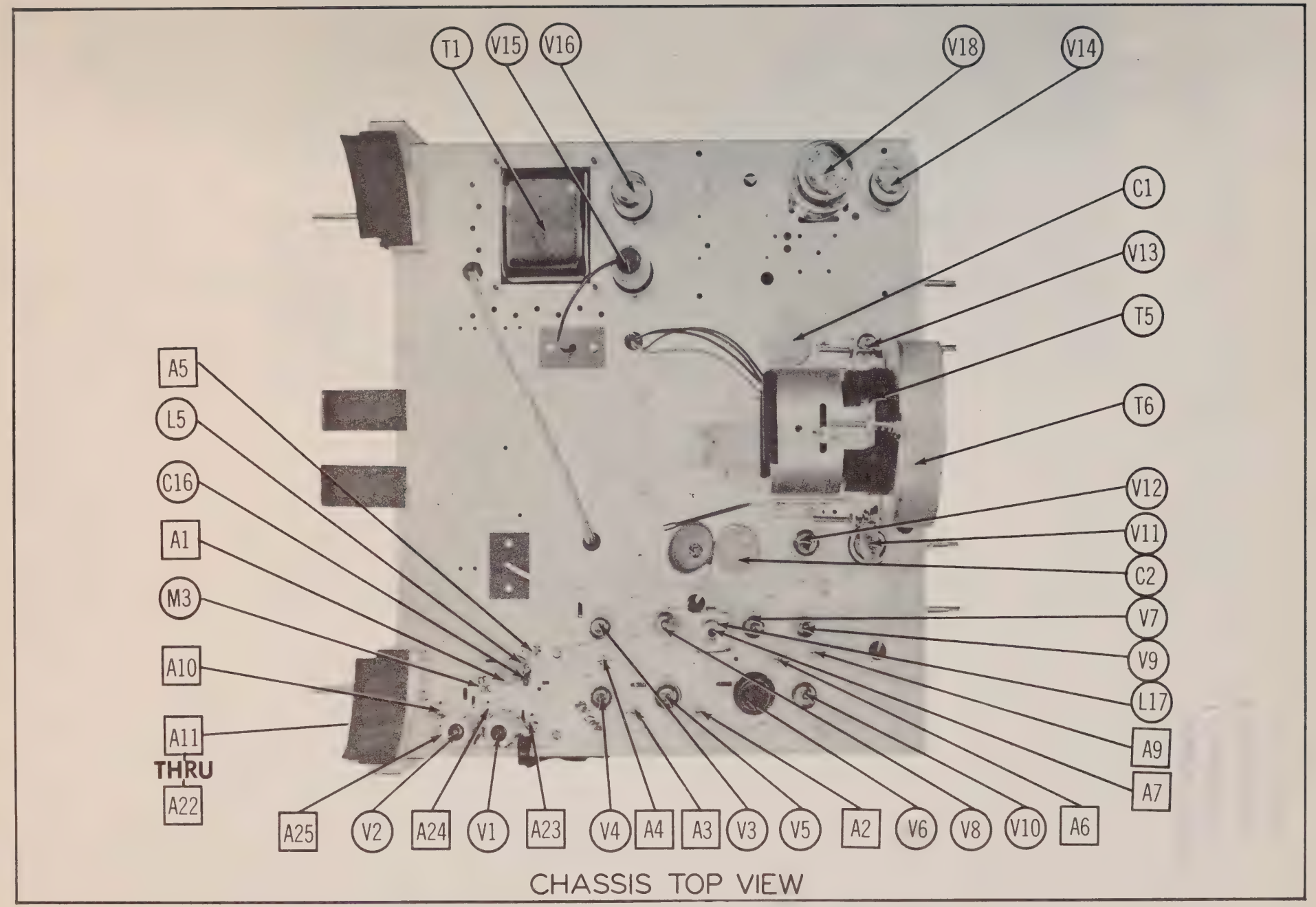
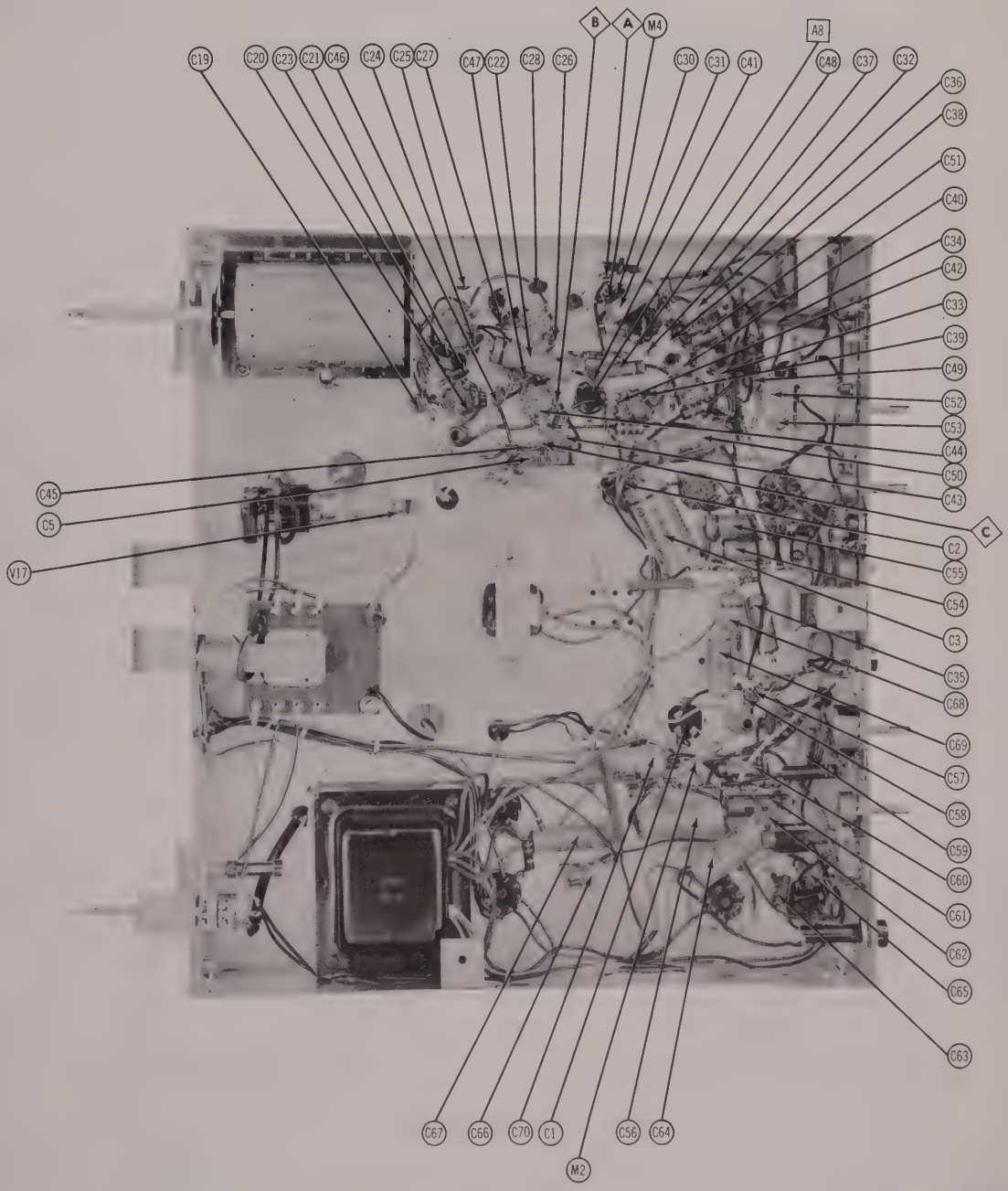
APEX MODELS
817, 920, 924, 9120, 9121, 9820, 98208, 9821

APEX MODELS
817, 920, 924, 9120, 9121, 9820, 98208, 9821



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW- CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal multivibrator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative side of a 3 volt battery to the ungrounded side of C23. Connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	21.25MC	Any	DC probe to Point A. Low side to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	23.3MC	"	"	A2	Adjust for maximum deflection.
3.	"	"	25MC	"	"	A3, A4	"
4.	"		25.3MC	"	"	A5	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection. Leave the 3 volt battery connected as before.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Direct	High side to an ungrounded tube shield floating over dummy converter tube.	24MC (10MC swp.)	21.25MC 25.75MC	Any	Vert. amp. to Point A. Low side to chassis.		Check for response curve similar to fig. 1 with video marker at 50%. If necessary readjust A2 thru A5 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from Point B to chassis. The junction of these two resistors is alignment Point D as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.01MFD	High side to Point A. Low side to chassis.	4.5MC (unmod.)	Any	DC probe to Point B. Common to chassis.	A6, A7	Adjust for maximum deflection.
7.	"	"	"	"	DC probe to Point C. Common to Point D.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.01MFD	High side to Point A. Low side to chassis.	4.5MC (450KC swp.)	4.5MC	Any	Vert. amp. to Point B. Low side to chassis.	A6, A7	Disconnect stabilizor capacitor C5. Adjust for maximum amplitude and symmetry as per fig. 2.
7.	"	"	"	"	"	Vert. amp. to Point C. Low side to chassis.	A8	Reconnect capacitor C5. Adjust so that 4.5MC occurs at center of crossover lines as per fig. 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.01MFD	High side to Point A. Low side to chassis.	4.5MC (unmod.)	Any	DC probe thru crystal diode detector (fig. 4) to pin 11 of picture tube. Common to chassis.	A9	Adjust for MINIMUM deflection.

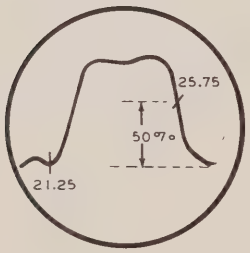


FIG. 1

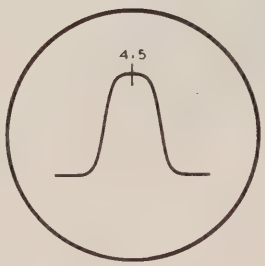


FIG. 2

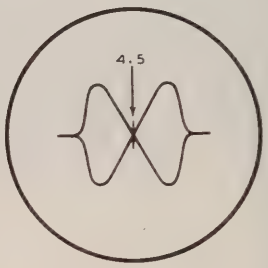


FIG. 3

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A10. It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct any individual channel. If adjustment of A10 will not bring all channels well within the range of the fine tuning control it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.

DENVER, COLORADO

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.
Remove the dummy converter tube and replace the original 6J6 in its socket.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC swp.)	211.25MC 215.75MC	13	Vert. amp. to Point (A) Low side to chassis.	A11	Adjust to place sound marker in 21.25MC trap notch as in fig. 5. Video marker should be at 50% response.
			207MC (10MC swp.)	205.25MC 209.75MC	12		A12	
			201MC (10MC swp.)	199.25MC 203.75MC	11		A13	
			195MC (10MC swp.)	193.25MC 197.75MC	10		A14	
			189MC (10MC swp.)	187.25MC 191.75MC	9		A15	
			183MC (10MC swp.)	181.25MC 185.75MC	8		A16	
			177MC (10MC swp.)	175.25MC 179.75MC	7		A17	
			85MC (10MC swp.)	83.25MC 87.75MC	6		A18	
			79MC (10MC swp.)	77.25MC 71.75MC	5		A19	
			69MC (10MC swp.)	67.25MC 71.75MC	4		A20	
			63MC (10MC swp.)	61.25MC 65.75MC	3		A21	
			57MC (10MC swp.)	55.25MC 59.75MC	2		A22	

RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC swp.)	205.25MC 209.75MC	12	Vert. amp. thru 47KΩ to Point (E) Low side to chassis.	A23, A24 A25	Adjust for response curve of maximum amplitude and symmetry as per fig. 6 with markers above 90% response.
11.	"	"	213MC (10MC swp.)	211.25MC 215.75MC	13	"		Check all channels for proper response. If markers fall below 70% on any channel make slight compromise adjustments of A23, A24 and A25 on that channel then recheck all other channels to see that they have not been seriously affacted.
			201MC (10MC swp.)	199.25MC 203.75MC	11			
			195MC (10MC swp.)	193.25MC 197.75MC	10			
			189MC (10MC swp.)	187.25MC 191.75MC	9			
			183MC (10MC swp.)	181.25MC 185.75MC	8			
			177MC (10MC swp.)	175.25MC 179.75MC	7			
			85MC (10MC swp.)	83.25MC 87.75MC	6			
			79MC (10MC swp.)	77.25MC 81.75MC	5			
			69MC (10MC swp.)	67.25MC 71.75MC	4			
			63MC (10MC swp.)	61.25MC 65.75MC	3			
			57MC (10MC swp.)	55.25MC 59.75MC	2			

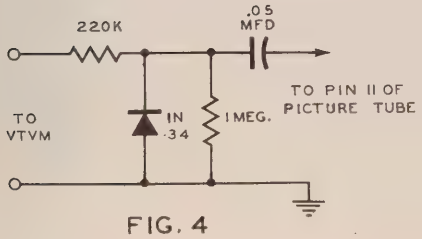


FIG. 4

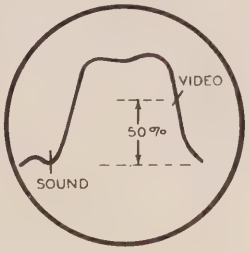


FIG. 5

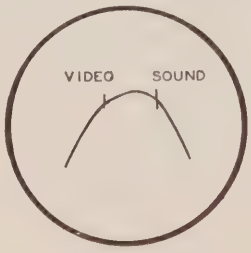
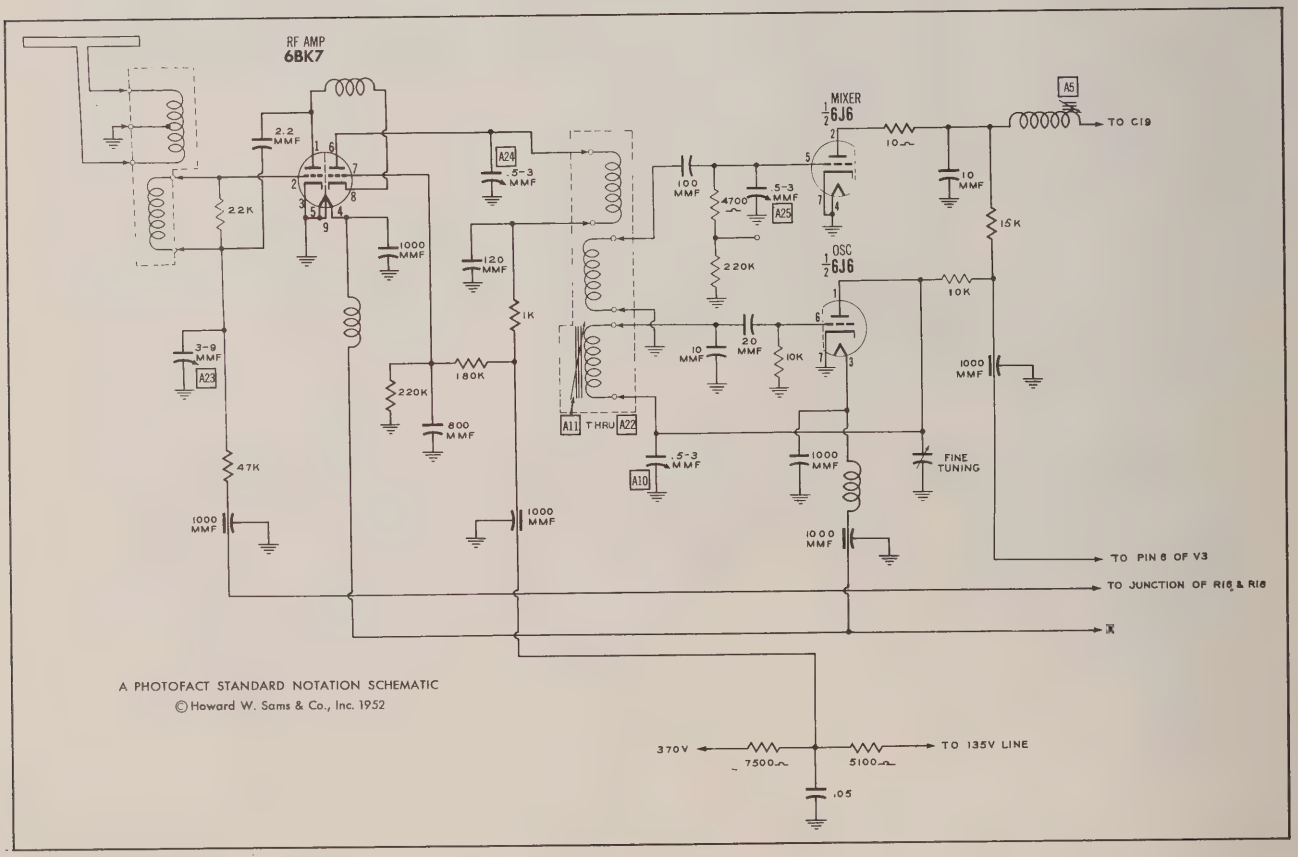


FIG. 6

RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	1Meg	0Ω	.1Ω	0Ω	■2.4KΩ	■2.4KΩ	0Ω		
V 2	6J6	■4.9KΩ	■200Ω	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	1Meg	56Ω	0Ω	.1Ω	■200Ω	■200Ω	0Ω		
V 4	6CB6	1Meg	56Ω	0Ω	.1Ω	■100Ω	■100Ω	0Ω		
V 5	6CB6	.2Ω	82Ω	0Ω	.1Ω	■0Ω	■0Ω	0Ω		
V 6	6AC7	0Ω	0Ω	0Ω	470KΩ	390Ω	■0Ω	.1Ω	†10KΩ	
V 7	6AU6	■100KΩ	■0Ω	■0Ω	■.1Ω	†22KΩ	†22KΩ	■0Ω	\	
V 8	6T8	INF	12KΩ	INF	0Ω	.1Ω	0Ω	0Ω	4.7MEG	■270KΩ
V 9	6AQ5	240KΩ	40KΩ	■0Ω	■.1Ω	†1.1KΩ	†800Ω	240KΩ		
V 10	12AU7	■680KΩ	1.2Meg	22KΩ	.1Ω	.1Ω	■6.1KΩ	22KΩ	2.2KΩ	0Ω
V 11	6SN7GT	2.8Meg	†22KΩ	0Ω	2.8Meg	#2.5Meg	0Ω	.1Ω	0Ω	
V 12	6S4	INF	1.6KΩ	2.2Meg	0Ω	.1Ω	2.2Meg	INF	INF	†1.4KΩ
V 13	6AL5	4.8Meg	4.8Meg	0Ω	.1Ω	15KΩ	0Ω	15KΩ		
V 14	6SN7GT	5.1Meg	†9.1KΩ	1.5KΩ	140KΩ	#325KΩ	1.5KΩ	0Ω	.1Ω	TOP CAP #42Ω
V 15	6BQ6GT	INF	.1Ω	INF	†25KΩ	1Meg	INF	0Ω	47Ω	
V 16	6AX4GT	†230Ω	INF	480KΩ	INF	†232Ω	INF	0Ω	.1Ω	TOP CAP #347Ω
V 17	1B3GT	PINS	1 - 8	HAVE	INF	RESISTANCE				
V 18	5U4G	INF	45KΩ	INF	28Ω	INF	26Ω	INF	45KΩ	
V 19	20DP4A	0Ω	8.2KΩ	PIN 10 #10KΩ	PIN 11 110KΩ	PIN 12 .1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V18
■ MEASURED FROM 135 VDC LINE



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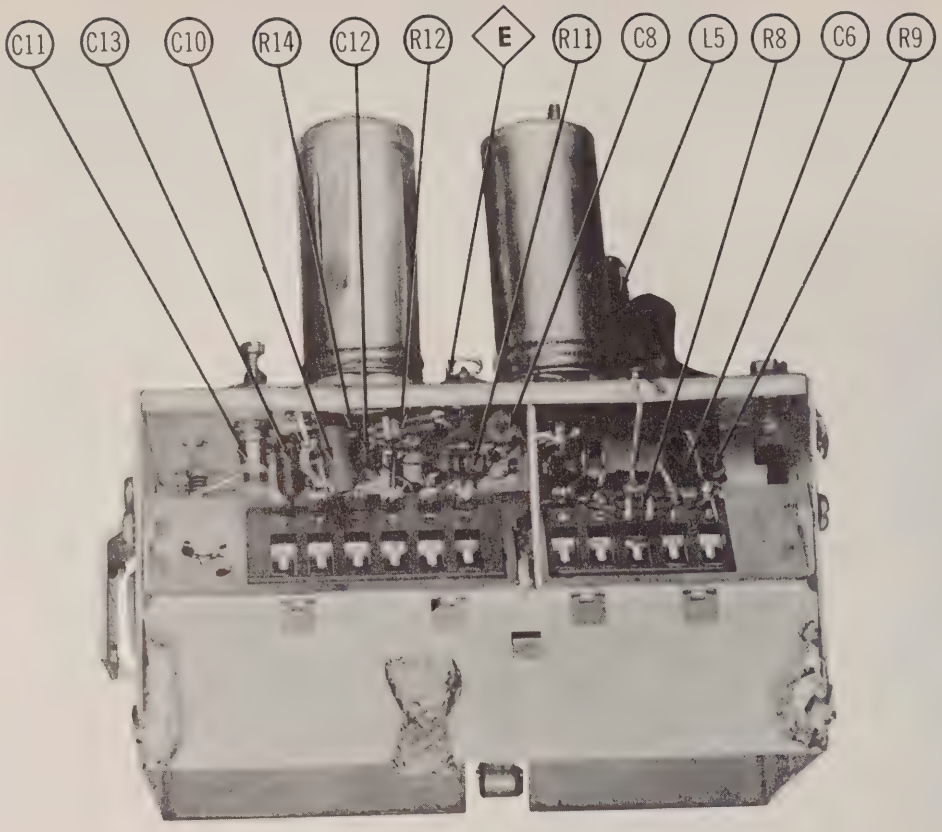
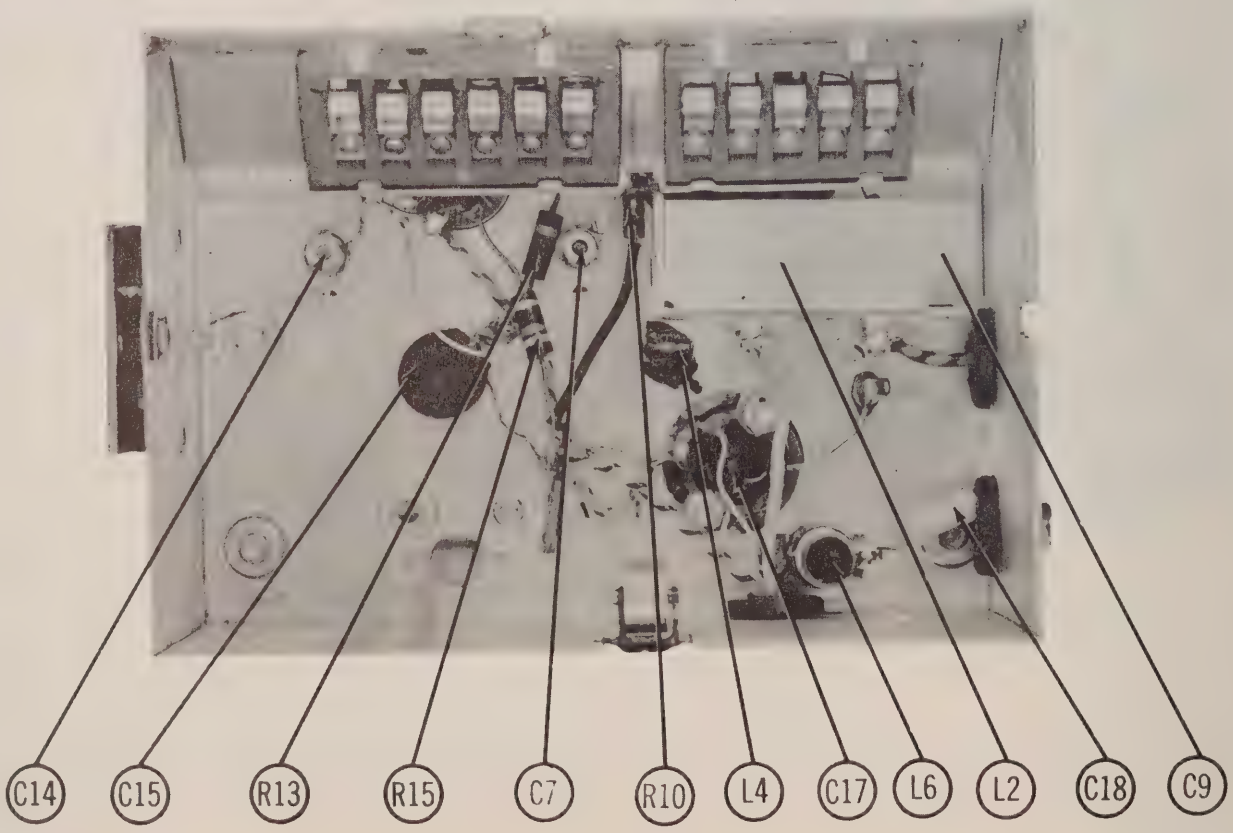
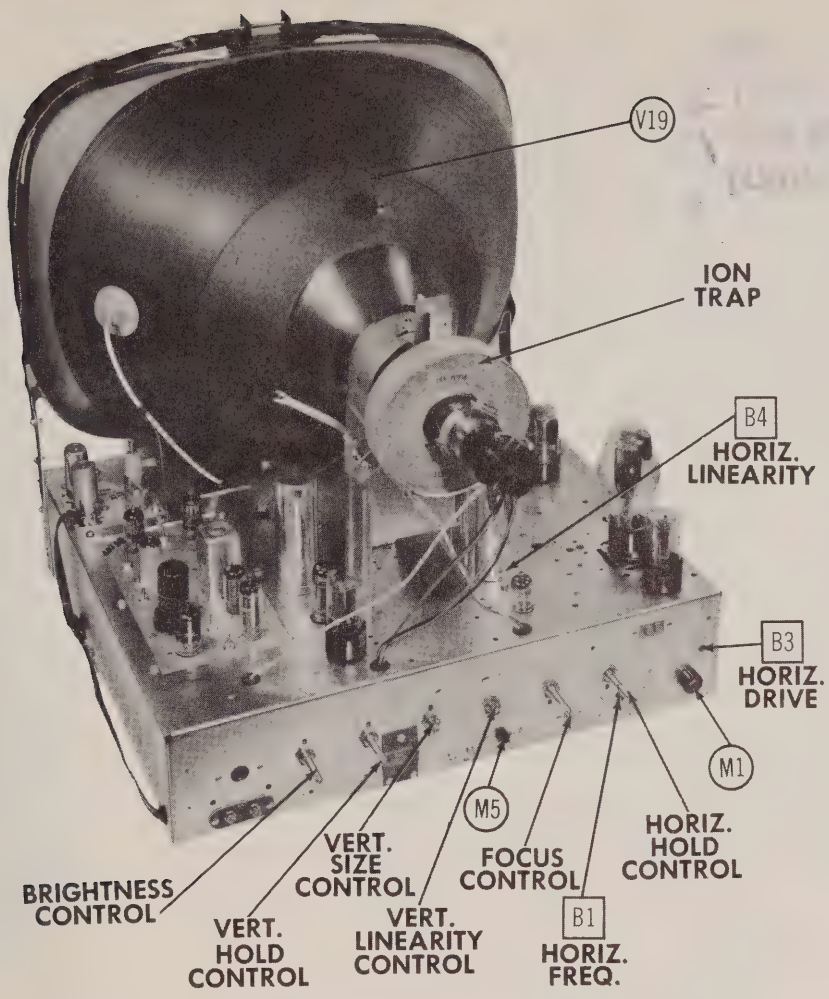
ALTERNATE TUNER SCHEMATIC



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CHASSIS–REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer (B2) counterclockwise to the point just before the picture starts to compress in the center.

Adjust the width slug (B3) for a picture slightly wider than enough to fill the picture mask.

Adjust the horizontal linearity slug (B4) for a picture that is symmetrical from left to right.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: APEX PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6CB6	6CB6	7CH	
B	RF Amplifier	6AQ5	6AQ5	7BD	
C	RF Amplifier	6BC5	6BC5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp	6CB6	6CB6	7CH	
V4	2nd. Video IF Amp	6CB6	6CB6	7CH	
V5	3rd. Video IF Amp	6CB6	6CB6	7CH	
V6	Video Output	6AC7	6AC7	8M	
V7	Sound IF Amp. Ratio Detector - AF Amp.	6AU8	6AQ8	7BK	
V8		6T8	6T8	9E	
V9	Audio Output	6AQ6	6AQ6	7BZ	
V10	Sync Clipper - Sync Phase Inv.	12AU7	12AU7	8A	
V11	Vert. Oscillator Vert. Discharge	6SN7GT	6SN7GT	8BD	
V12	Vert. Output	6S4	6S4	9AC	
V13	Horiz. Phase Det.	6AL5	6AL5	6BT	
V14	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V15	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V16	Damper	6AX4GT	6AX4GT	4CG	
V17	HV Rectifier	1B3GT	1B3GT	3C	
V18	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: APEX PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RMA BASE TYPE	NOTES
V19A	20DP4A	20DP4A	12D	① Circuit changes necessary
		20DP4 ① ②	12D	② 3/8" shorter
		20CP4 ① ②	12D	
		20CP4A ① ②	12D	
		20HP4A ①	12C	
		20HP4A ③	12C	
V19B	24AP4, A	24AP4, A	12D	Used in Model 924

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: APEX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	±80	450		APH4-87		UPT52245		FP45.3	TVL-2777	Note 1
B	±20	450				BRI501		TC3501	TVA-1810	
C	±100	50								
C2A	±40	450		AFH3-159				FP375	TVL-3764	
B	±40	450		PR8200/30-30				TC88	TVA-1813	
C	±100	200								
D	60	300			829-3					
C3	40	350		PR8450/40		BR4035		TC78	TVA-1611	
C4	4	50		PR8150/4		BR550		TC30	TVA-1303	Note 2
C5	4	50		PR8150/4		BR550		TC30	TVA-1303	
C6	.5-3				829-3			CT565A		
C7	.5-3				829-3			CT565A		
C8	180			8H20	D8-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C9	1000			8H000	D8-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C10	100			8H00	D8-101	TM5T1	GP1K-101	UC-521	5GA-T1	
C11	.5-3				829-3			CT565A		
C12	20			8I20NP0	TCZ-20		NP0K-200	27-542		
C13	10			8I10N750	TCN-10		N750K-100	NT-541	5TCU-QI	
C14	.5-3				829-3			CT565A		
C15A	1000			BPD-2X001	DD-2-102	TM5DD1	812-001	DCD-521	5HK-D1	
B	1000									
C16	72	500		1469-000075				MCB230		
C17	10			8I10NP0	TCZ-10		NP0K-100	27-541	5TCC-QI	
C18	120	500		1469-00015		5R5T15		MCB236		
C19	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C20	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C21	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 2
C22	.3	400		824-3		PTE4P22			4TM-P22	
C23	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C24	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C25	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 2
C26	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C27	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C28	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 2
C29	.3	600		824-2						
C30	10	500		1469-00001	TCZ-10	5R5Q1	NP0K-100	MCB315	MS-41	
C31	.05	400		P488-05	DF-503	PTK4S5		PT415	4TM-S5	
C32	220			8I220	D8-221	5R5T25	GP2K-221	UC-5322	5GA-T22	Note 2
C33	47			8I47	D8-470	5R5Q5	GP1K-470	UC-5447	5GA-Q47	Note 3
C34	.2	400		824-2		PTE4P22		PT4022	4TM-P22	
C35	.02	1000		P1068-02		PTE1S02		PT1S02	MD-S2	
C36	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C37	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	Note 4
C38	2.2				TCZ-2.2		NP0K-2R2			
C39	120			8I120	D8-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C40	47			8I47	D8-470	5R5Q5	GP1K-470	UC-5447	5GA-Q47	Note 5
C41	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C42	5	500		1469-000005		5R5V5		MCB205	MS-55	
C43	220	500		1468-00025	D8-221	5WST25	GP2K-221	MC240	1FM-325	
C44	2000			8I2000	D8-202	TM5D3	GP2-333-202	UC-523	5HK-D3	
C45	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C46	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C47	470	500		1468-0005	D8-471	5WT75	GP2K-471	MC245	1FM-35	
C48	.002	600		P688-002	D8-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C49	.01	600		P688-01	D8-103	PTE6S1	GP2-333-103	PT611	6TM-S1	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: APEX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C50	.2	400		684-2		PTE4P22		PT4025	4TM-P22	
C51	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C52A	.002			P688-002		PTE6D2	GP2-333-202	PT622		
B	.005			P688-005	±PC-100	PTE6D5	GP2-333-502	PT625	± 10%!	
C	.005			P688-005		PTE6D5	GP2-333-502	PT625		
C53	.0047	600		P688-0047	D8-472	PTE6D47	GP3-333-472	PT6147	6TM-D47	
C54	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C55	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C56	.2	600		684-2						Note 2
C57	1000			8D1000	D8-102	TM6D1	GP2L-102	UC-521	5HK-D1	
C58	1000			8D000	D6-102	TM6D1	GP2L-103	UC-521	5HK-D1	
C59	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C60	.005	600		P688-005	D6-502	PTE6S5	GP2-333-502	PT625	6TM-D5	
C61	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C62	3900	500		1464-004		IDR5D4		MCB462		
C63	330	500		1469-00035						
C64	.2	600		684-2						
C65	390	500		1469-0004		5RST4		MCB243	MS-34	Note 6
C66	390	500		1469-0004		5RST4		MCB243	MS-34	
C67	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C68	.05	1000		P1068-05				PT1S15	MD-S5	
C69	.03	1000		P1068-03		PTE1S03		PT1S13	MD-S3	

Note 1. Some models use two 40MFD in this application.
Note 2. Not used in all models.
Note 3. Some models use 120MMF in this application.
Note 4. Some models use 40MFD @ 50V. in this application.
Note 5. Some models use 75MMF in this application.
Note 6. Some models use 470MMF in this application.
* Items C52A, C52B, C52C, R52A, R52B and R52C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: APEX PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No	INSTALLATION NOTES
R1A	1000Ω	½	P24-100A	QJ-326*			UF15R	Contrast - See Note
B	500KΩ	½					UR55A	Volume-Rear
C	Switch						UB-2B	Attach to R1B
R2A	50KΩ	½	P25-18	QU-123	AG-44-S	AB-31	U-35	Brightness
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R2A
R3A	50KΩ	½	P25-18	QU-123	AG-44-S	AB-31	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R3A
R4A	2Meg	½	P25-15	QU-139	AG-83-S	AB-75	SU-56	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R4A
R5A	2Meg	½	P25-20	QU-158	AG-83-S	AB-75	U-56	Vert. Hold
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R5A
R6A	2500Ω	½	P25-13	QU-113	AG-15-S	AB-7	U-6	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R6A
R7	2250Ω	4	P25-19		RTV-319		TVF143	Focus-Wire Wound

NOTE: Connect 1800Ω resistor between center terminal and maximum clockwise terminal (Control viewed from shaft end, terminals down).
* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B17-110 & P1-224 (Panel) B13-133 & R2-306 (Rear) & Switch 76-1.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: APEX PART No.	IRC PART No.	IDENTIFICATION CODES: ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R1	3900Ω	½		BTS-3900	Antenna Coil Shunt
R2	47KΩ 20%	½			RF Amp. Grid
R3	2200Ω 20%	½		BTS-2200	RF Amp. Decoupling
R11	10KΩ	½			RF Coil Shunt
R12	4700Ω	½		BTS-4700	Mixer Grid
R13	220KΩ 20%	½			Mixer Grid
R14	10KΩ	½			Oscillator Grid
R15	4700Ω	½		BTS-4700	Oscillator Plate
R16	4700Ω	½		BTS-4700	1st. Video IF Grid
R17	56Ω	½			1st Video IF Cathode
R18	680Ω	½		BTS-680	AGC Network
R19	6800Ω	½			2nd. Video IF Coil Shunt
R20	56Ω	½			2nd. Video IF Cathode
R21	1Meg 20%	½		BTS-1Meg	AGC Network
R22	100Ω	½		BTS-100	Decoupling
R23	100Ω	½		BTS-100	Decoupling
R24	6800Ω	½			3rd. Video IF Coil Shunt
R25	82Ω	½		BTS-82	3rd. Video IF Cathode
R26	5600Ω	½		BTS-5600	Video Detector Diode Load
R27	470KΩ	½		BTS-470K	Video Output Grid
R28	82Ω	½		BTS-82	Video Output Cathode
R29	1000Ω	2		BTS-1000	Contrast Network
R30	6800Ω	2		BTS-6800	Video Output Plate
R31	10KΩ	½		BTS-10K	Isolation
R32	100KΩ	½		BTS-100K	Picture Tube Cathode
R33	10KΩ	½		BTS-10K	Acc. Anode Load
R34	100KΩ	½		BTS-100K	Sound IF Grid
R35	22KΩ	2		BTS-22K	Sound IF Decoupling
R36	150Ω	½		BTS-150	Balancing
R37	47KΩ 20%	½		BTS-47K	De-emphasis
R38	12KΩ	½		BTS-12K	Ratio Det. Diode Load
R39	4.7Meg	½		BTS-4.7Meg	AF Amp. Grid
R40	270KΩ	½		BTS-270K	AF Amp. Plate
R41	330KΩ 5%	½		BTS-330K 5%	Voltage Divider
R42	180KΩ 5%	½		BTS-180K 5%	Voltage Divider
R43	100KΩ	½		BTS-100K	AF Output Grid
R44	800Ω	5		1 3/4A-800	AF Output Decoupling - Wire Wound
R45	1.2Meg	½		BTS-1.2Meg	Sync Clipper Grid
R46	22KΩ	½		BTS-22K	Sync Clipper Cathode
R47	680KΩ	½		BTS-680K	Sync Clipper Plate
R48	22KΩ	½		BTS-22K	Sync. Ph. Inv. Grid
R49	2200Ω	½		BTS-2200	Sync Ph. Inv. Cathode
R50	3900Ω	½		BTS-3900	Sync Ph. Inv. Plate
R51	2200Ω	½		BTS-2200	Sync Ph. Inv. Plate

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: APEX PART No.	IRC PART No.	IDENTIFICATION CODES
R52A	22KΩ	½		BTS-22K	Integrator Network
B	8200Ω	½	*	BTS-8200	Integrator Network
C	8300Ω	½		BTS-8300	Integrator Network
R53	1.5Meg	½		BTS-1.5M	Vert. Osc. Grid
R54	10KΩ	½		BTS-10K	Vert. Osc. Trans. Shunt
R55	22KΩ	½		BTS-22K	Vert. Osc. Plate
R56	1.5 Meg	½		BTS-1 5Meg	Vert. Discharge Plate - See Note 1
R57	56KΩ	½		BTS-56K	Vert. Discharge Plate Decoupling
R58	470KΩ	½		BTS-470K	Voltage Divider
R59	8200Ω	½		BTS-8200	Vert. Peaking
R60	2.2Meg	½		BTS-2.2Meg	Vert. Output Grid
R61	680Ω	½		BTS-680	Vert. Output Cathode
R62	100KΩ	½		BTS-100K	Horiz. Ph. Det. Diode Load
R63	100KΩ	½		BTS-100K	Horiz. Ph. Det. Diode Load
R64	4.7Meg	½		BTS-4.7Meg	Horiz. Ph. Det. Diode Load
R65	470K	½		BTS-470K	Horiz. AFC Filter
R66	5800Ω	½		BTS-5800	Horiz. M.V. Plate
R67	1500Ω	½		BTS-1500	Horiz. M.V. Cathode
R68	100KΩ	½		BTS-100K	Horiz. M.V. Grid
R69	270KΩ	½		BTS-270K	Horiz. M.V. Plate
R70	56KΩ	½		BTS-56K	Horiz. M.V. Plate Dec.
R71	4700Ω	½		BTS-4700	Horiz. Peaking
R72	56Ω	½			Parasitic Suppressor
R73	1Meg	½		BTS-1Meg	Horiz. Output Grid - See Note 2
R74	25KΩ	10		1 2/4A-25K	Horiz. Output Screen - Wire Wound
R75	47Ω	½			Horiz. Output Cathode - See Note 3
R76	3.3Ω	½			H.V. Rect. Filament
R77	470KΩ	½			H.V. Filter
R78	15KΩ	½		BTS-15K	Horiz. Feedback
R79	3300Ω	2		BTS-3300	Voltage Divider
R80	330Ω 80%	2		BTS-330	Focus Coil Shunt
R81	27Ω	1			Horiz. Output Cathode - See Note 4

Note 1. Some Models may use a 2.7Meg Resistor in this application
* Items C52A, C52B, C52C, R52A, R52B and R52C are combined in one unit
Note 2. Some Models may use a 470KΩ Resistor in this application
Note 3. Some Models may use a 120Ω Resistor in this application
Note 4. Not used in all Models

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: APEX PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117V AC 60 CY 54A	800V CT @ 250ADC	5V AC @ 3A	6.3V AC @ 7.5A SEC. 4 6.3V AC @ 15A			P-3067		

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: APEX PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	170Ω	1000Ω		A-8111 ②	A-3000 ②	TBO-2 ②	A-97X	Vert. Osc. Trans
T3	325Ω Tap @ 20Ω	7.5Ω Tap @ 5Ω, 5.5Ω SEC. 2 1.7Ω SEC. 3 0Ω						Horiz. Output Trans.
T4	1230Ω Tap @ 10Ω			A-8123	A-3037	TSO-3	A-102X	Vert. Output Trans.
T5	8.5Ω 45Ω			DY-8	MDF-70	TY-2	Y-12	Horiz. Deflection coils. Vert. Deflection Coils.
T6	100Ω			FC-11			B-870-R	Focus Coil.

② Drill one new mtg. hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: APEX PART No.	STANCOR PART No	MERIT PART No	CHICAGO PART No.	TRIAD PART No.	NOTES
T7	7.6KΩ	3.2Ω	165Ω	7Ω		A-3649	A3020	RO-201	S-9X	

IDENTIFICATION CODES

E. F. HUTTON
3924 MILADE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	APEX PART No.	MERIT PART No.	
L1	Ant. Coil	0Ω				
L2	Fil. Choke	0Ω				
L3	RF, Mixer Grid & Osc.	0Ω				
L4	Fil. Choke	0Ω				
L5	Conv. Plate & IF Trap	1.6Ω	0Ω			
L6	1st. Video IF	1Ω				
L7	Fil. Choke	0Ω				
L8	2nd. Video IF	.2Ω	.2Ω			
L9	3rd. Video IF	.2Ω	.2Ω			
L10	4th. Video IF	.2Ω	.2Ω			
L11	Peaking Coil	2.4Ω			TV-180	White, 36 Microhenries
L12	Peaking Coil	9.5Ω				Red, 375 Microhenries
L13	Peaking Coil	6.8Ω			*TV-185	Blue, 225 Microhenries, Wound on 10K resistor
L14	4.5MC Trap	1.8Ω			TV-151	
L15	Peaking Coil	11Ω				Green, 510 Microhenries
L16	Sound IF	1.8Ω			TV-151	
L17	Ratio Det.	4.2Ω	.2Ω		TV-110	Tertiary Winding .7Ω
L18	Horiz. Osc.	47Ω			TV-163	
L19	Width Coil	.45Ω				
L20	Horiz. Lin.	22Ω			MWC-1	

*Parallel with 10K resistor

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			APEX PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	5A. 250V.			312005	341001	MTH5	HKP
M2	3AG Pigtail	1/4A. 250V.			318.250		GJV 1/4	

MISCELLANEOUS

ITEM No.	PART NAME	APEX PART No.	NOTES
M3	RF tuner		
M4	Crystal		IN64
M5	Switch		TV-Phono

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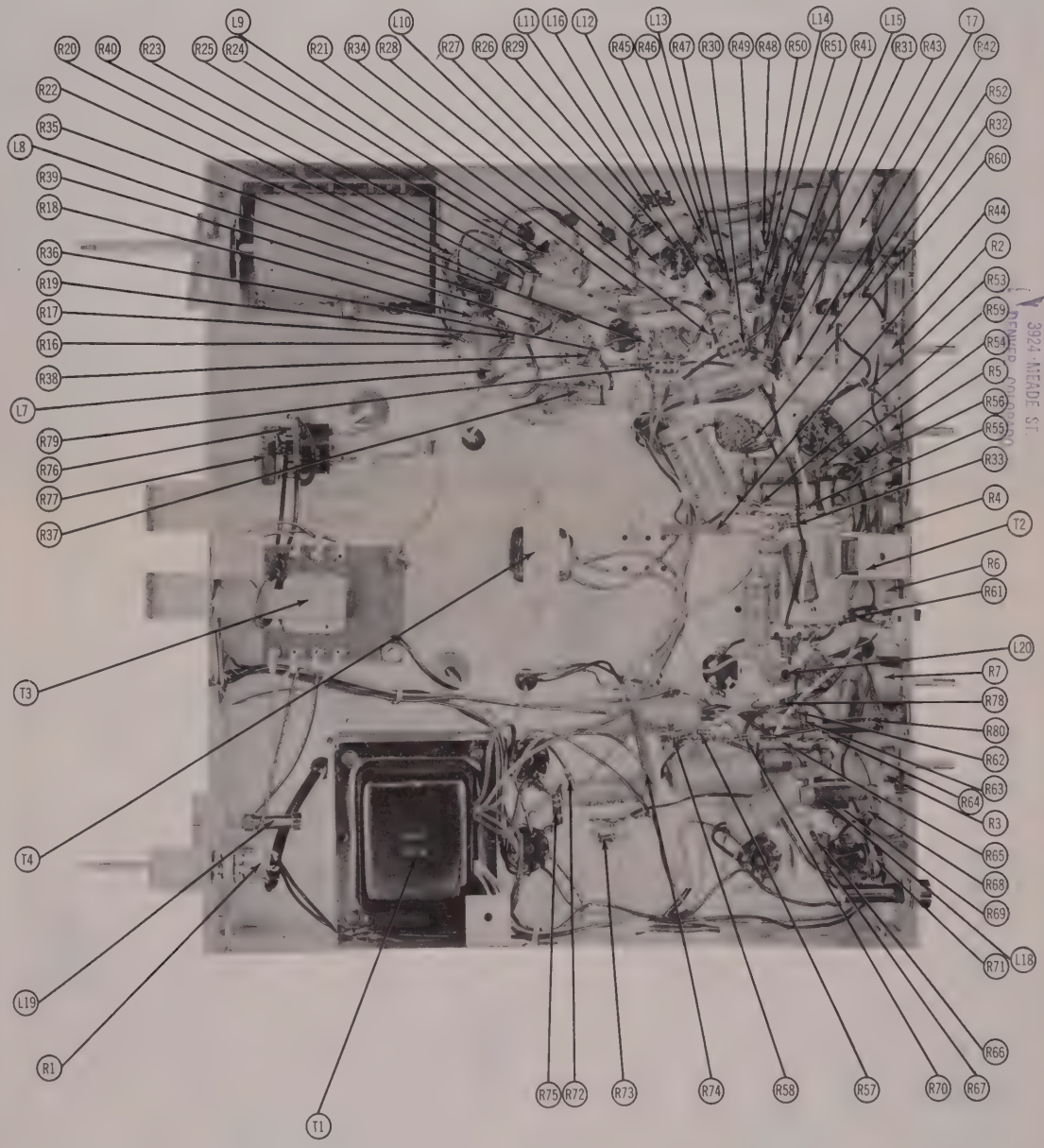

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PHOTOFACT* Folder

*TRADE MARK

ARVIN MODELS 6175TM, 6179TM, (Ch. TE-331, TE-331-2)

L. F. BLANK
3924 MEADE ST.
DENVER, COLORADO

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MODEL 6175TM

ARVIN MODELS 6175TM, 6179TM, (Ch. TE-331, TE-331-2)

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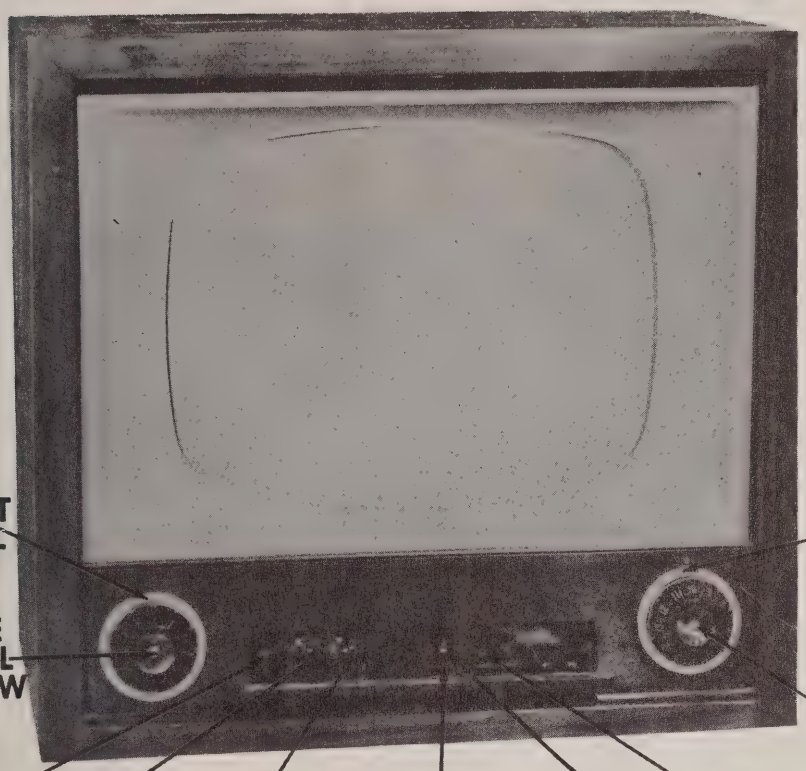
DATE 10-52 SET 181 FOLDER 4

ARVIN MODELS 6175TM, 6179TM, (Ch. TE-331, TE-331-2)



ARVIN 6175TM

TRADE NAME	Arvin Models 6175TM, 6179TM (Ch. TE-331, TE-331-2)
MANUFACTURER	Arvin Industries, Columbus, Indiana.
TYPE SET	Television Receiver
TUBES	Twenty-two
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	2 Amp. @ 117 Volts AC
TUNING RANGE-	CHANNELS 2 thru 13

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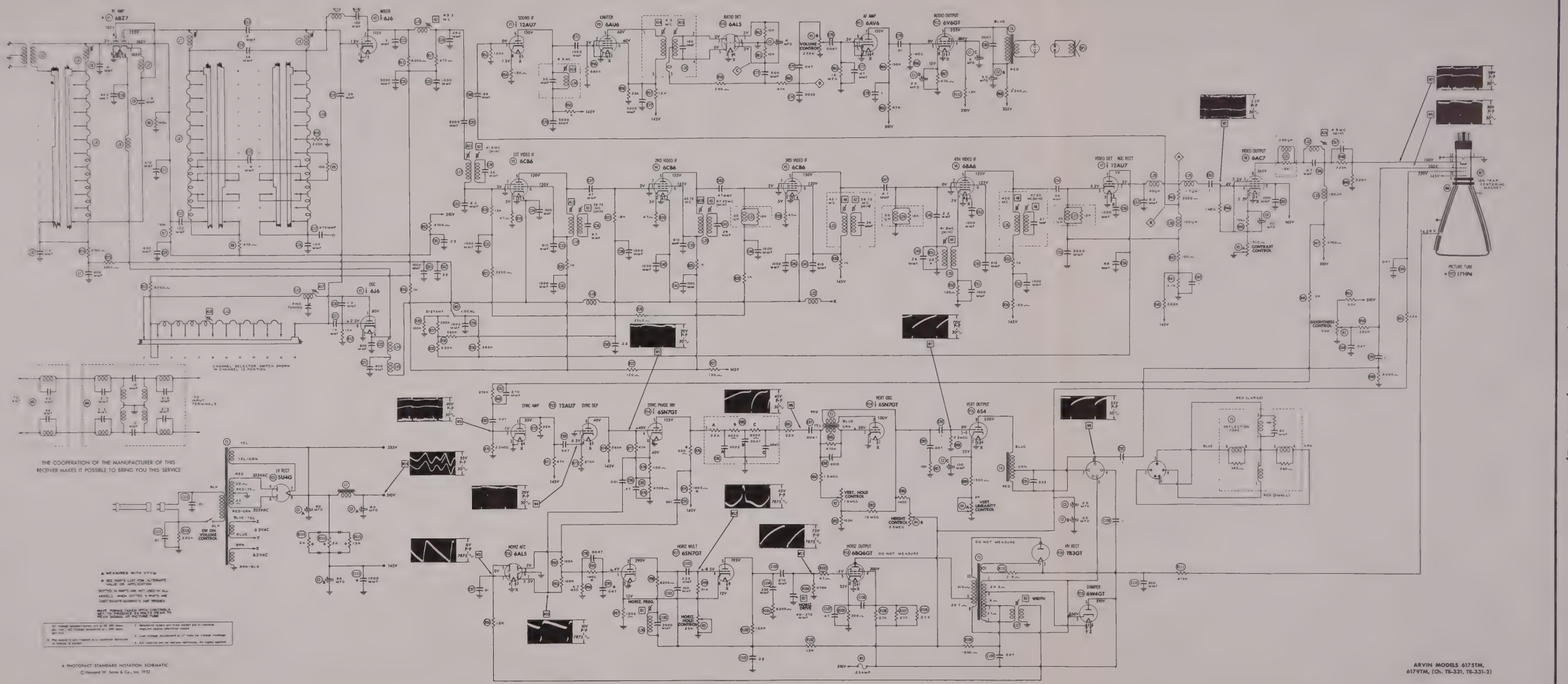
ARVIN MODELS 6175TM, 6179TM, (Ch. TE-331, TE-331-2)


R. AMP 6BZ7
MIXER 6J6
OSC 6J6
SOUND IF 12AU7
LIMITER 6AU6
RATIO DET 6AL5
AF AMP 6V6
AUDIO OUTPUT 6V6GT
1ST VIDEO IF 6CB6
2ND VIDEO IF 6CB6
3RD VIDEO IF 6CB6
4TH VIDEO IF 6BA6
VIDEO DET AGC RECT 12AU7
VIDEO OUTPUT 6AC7
PICTURE TUBE 17HP4
SYNC AMP 12AU7 SYNC SEP
SYNC PHASE INV 6SN7GT
VERT OSC 6SN7GT
VERT OUTPUT 6S4
HORIZ AFC 6AL5
HORIZ MULT 6SN7GT
HORIZ OUTPUT 6BQ6GT
DAMPER 6W4GT
HV RECT 1B3GT
LV RECT 5U4G
CONTRAST CONTROL
BRIGHTNESS CONTROL
VERT. HOLD CONTROL
HEIGHT CONTROL
VERT LINEARITY CONTROL
HORIZ FREQ.
HORIZ HOLD CONTROL
HORIZ DRIVE
WIDTH
ION TRAP CENTERING MAGNET
SW ON VOLUME CONTROL
FINE TUNING
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
DISTANT
LOCAL
DEFLECTION YOKE
RED (LARGE)
RED (SMALL)
DO NOT MEASURE
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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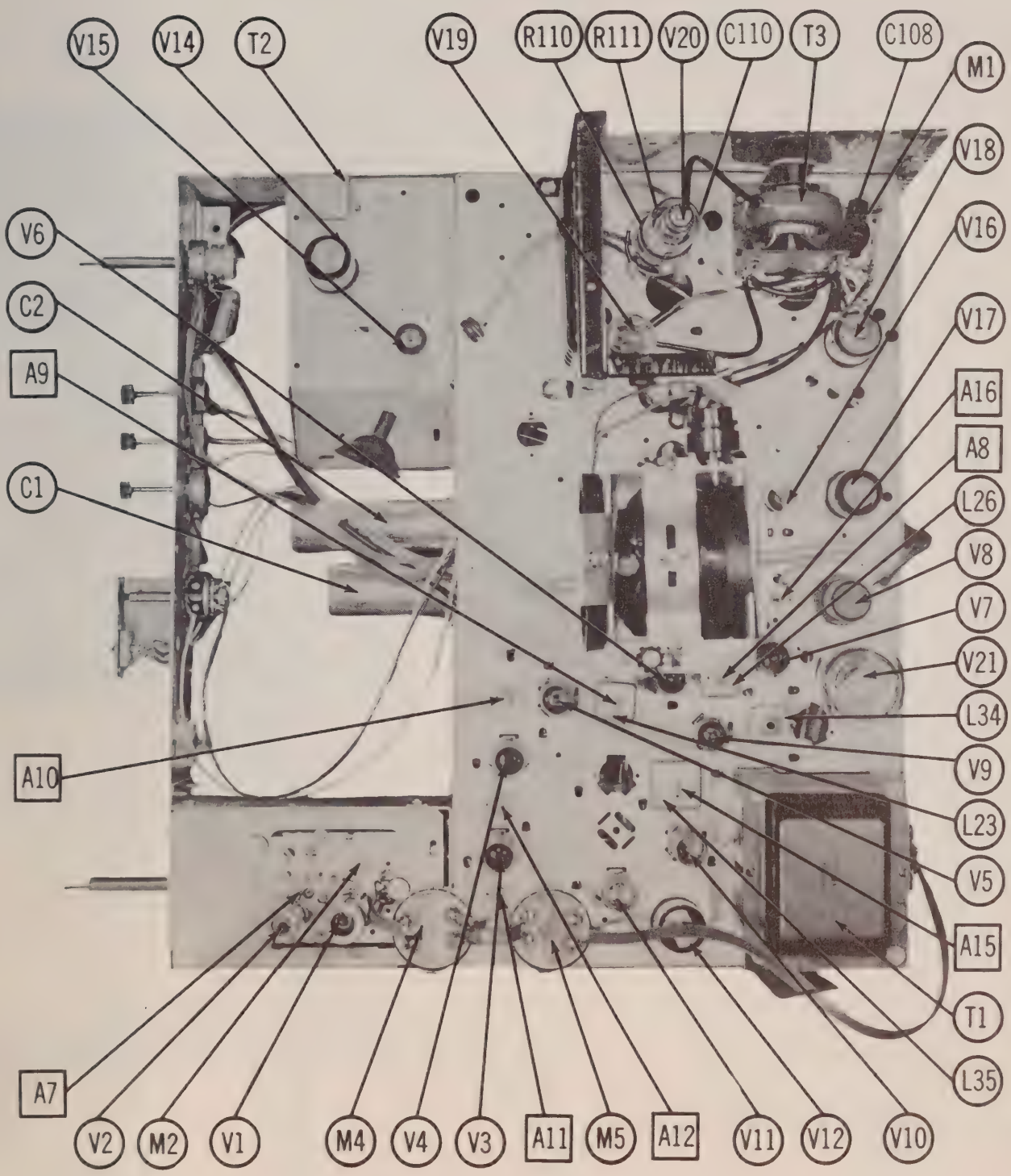
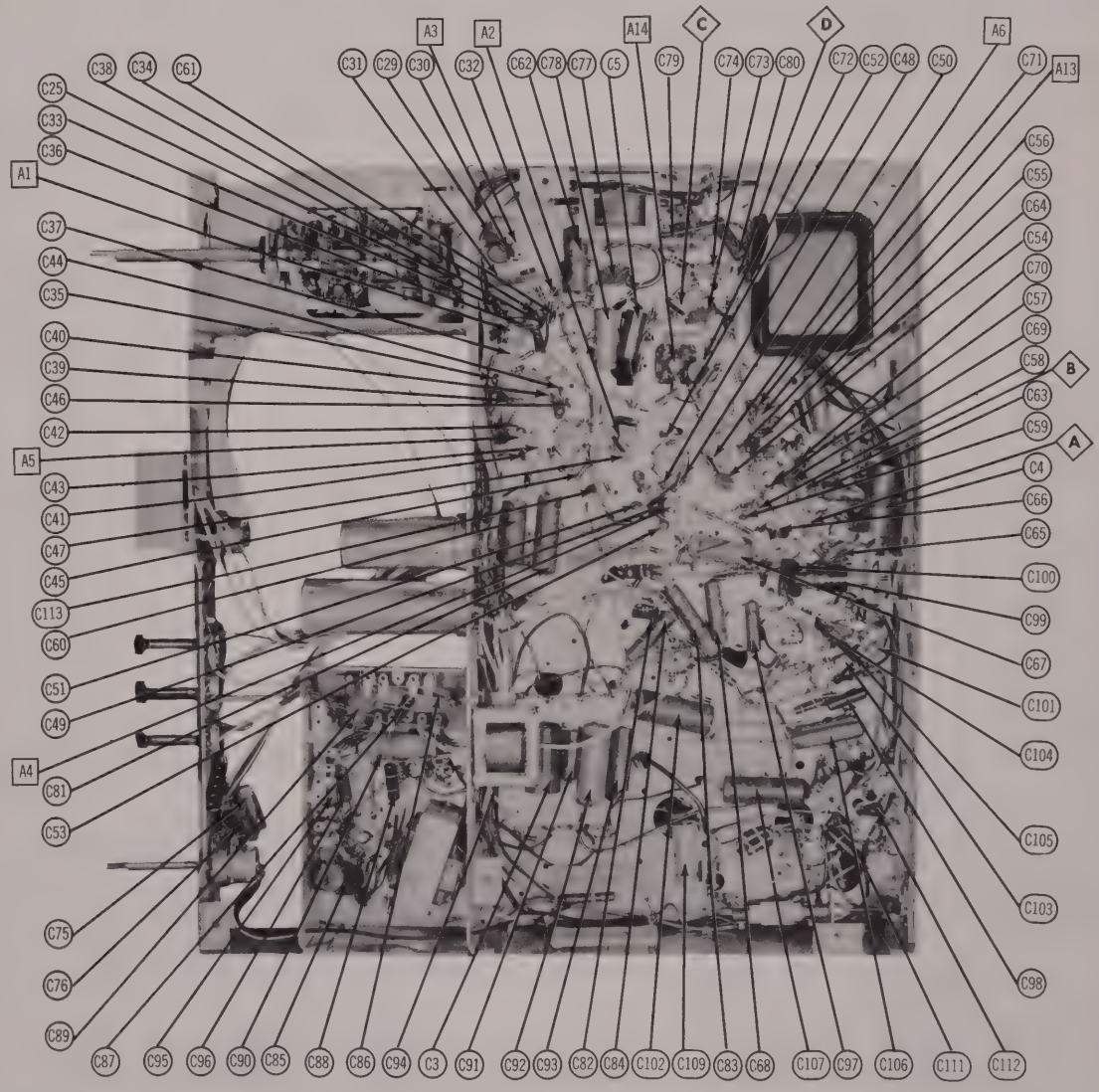
ARVIN MODELS 6175TM, 6179TM, (Ch. TE-331, TE-331-2)



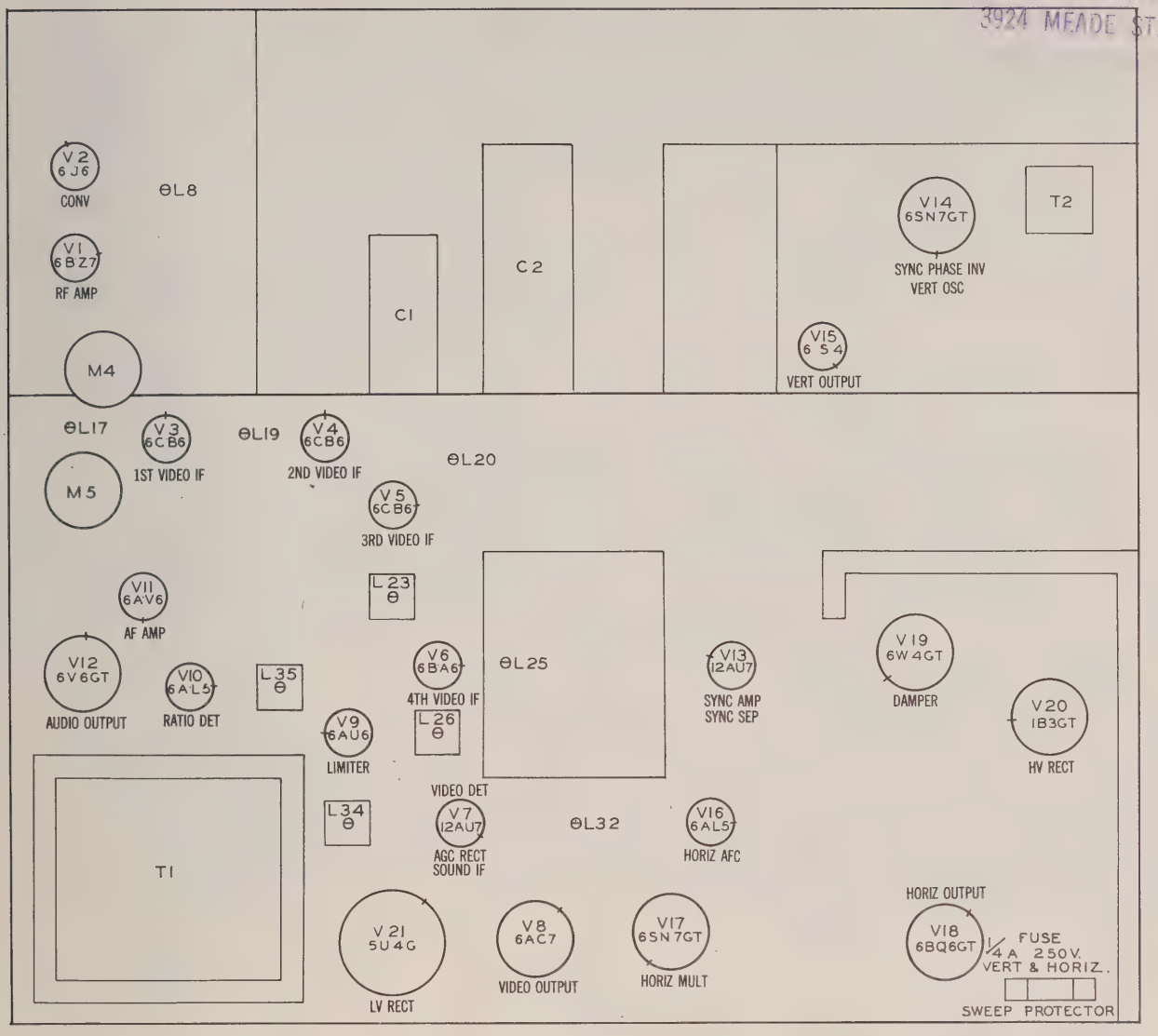
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW- CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART

PROPERTY
L. F. BLANKENSHIP
3924 MEADE ST.



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-V21

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster-V2, V3, V4, V5, V6, V7
No pic, no sound, has snow-V1, V2, V3
No pic, has sound, has raster-V8, V22
Has pic, no sound-V7, V9, V10, V11, V12
Overloaded Picture-V7

SYNC FAILURE
No vert. sync-V14
No horiz. sync-V14, V16, V17
No vert. or horiz. sync-V13, V14

SWEEP FAILURE
No raster, has sound-V17, V18, V19, V20, V21, Fuse (M1)
No vertical deflection-V15
Poor vert linearity or foldover-V14, V15
Poor horiz. linearity or foldover-V17, V18, V19
Narrow picture-V17, V18, V19, V20, V 21
Vert off freq. -V14
Horiz. off freq. -V14, V16, V17

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard can be eliminated by removing the horizontal multivibrator tube, V17.

VIDEO IF ALIGNMENT

Remove the converter tube, V2, from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the junction of R35 and R37. Connect the positive lead to chassis.
Set the Local-Distance switch to local position.

1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube V2. Low side to chassis.	39.75MC	Any	DC probe to point (A) Common to point (B)	A1, A2	Adjust for MINIMUM deflection.
2.	"	"	41.6MC	"	"	A3, A4	"
3.	"	"	47.25MC	"	"	A5, A6	"
4.	"	"	45.3MC	"	"	A7	Preset core to maximum clockwise position. Adjust for maximum deflection.
5.	"	"	45MC	"	"	A8	Adjust for maximum deflection.
6.	"	"	43.1MC	"	"	A9	"
7.	"	"	45.75MC	"	"	A10	"
8.	"	"	42.25MC	"	"	A11, A12	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, V2. Low side to chassis.	44MC (10MC Swp)	41.6MC 42.25MC 42.75MC 45.MC 45.75MC	Any	Vert. amp. to point (A). Low side to chassis.		Check for response curve similar to fig.1 with markers as shown. If necessary retouch A7 thru A12 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.001MFD	High side to point (A) Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point (C) Common to chassis.	A13, A14	Adjust for maximum deflection.
11.	"	"	"	"	DC probe to point (D) Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side to the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	.001MFD	High side to point (A). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. to point (C) Low side to chassis.	A13, A14	Disconnect stabilizer capacitor C5. Adjust for curve of maximum amplitude and symmetry as per fig. 2.
11.	"	"	"	"	"	Vert. amp. to point (D). Low side to chassis.	A15	Reconnect capacitor C5. Adjust so that 4.5MC occurs at center of crossover lines as in fig. 3.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
12.	.001MFD	High side to point (A) Low side to chassis.	4.5MC (Unmod)	Any	DC probe thru detector (fig 4) to pin 11 of picture tube.	A16	Adjust MINIMUM deflection.

FIG. 1

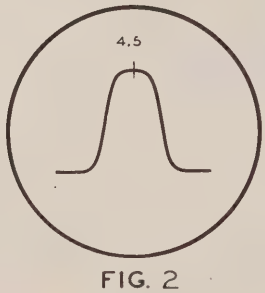


FIG. 2

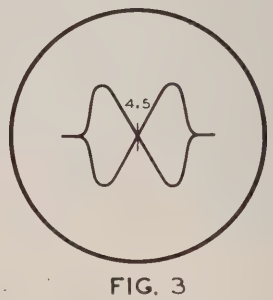


FIG. 3

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	215.75MC	13	Vert. amp. to point (A). Low side to chassis.	A17	Adjust to place sound marker in notch as in fig. 5.
14.	"	"	207MC (10MC Swp)	209.75MC	12	"		Check for sound marker placement as in fig. 5. If necessary make compromise adjustment of A17 for any individual channel then check all other high band channels to see that they have not been affected.
			201MC (10MC Swp)	203.75MC	11			
			195MC (10MC Swp)	197.75MC	10			
			189MC (10MC Swp)	191.75MC	9			
			183MC (10MC Swp)	185.75MC	8			
			177MC (10MC Swp)	179.75MC	7			
15.	"	"	85MC (10MC Swp)	87.75MC	6	"	A18	Adjust to place sound marker in notch as in fig. 5.
16.	"	"	79MC (10MC Swp)	81.75MC	5	"		Check for sound marker placement as in fig. 5. If necessary make compromise adjustment of A18 for any individual channel then check all other channels to see that they have not been seriously affected.
			69MC (10MC Swp)	71.75MC	4			
			63MC (10MC Swp)	65.75MC	3			
			57MC (10MC Swp)	59.75MC	2			

THE RF AND MIXER PORTIONS OF THIS RECEIVER HAVE BEEN PROPERLY ALIGNED AT THE FACTORY, AND ARE VERY STABLE. ALIGNMENT OF THIS PORTION SHOULD NOT BE REQUIRED IN THE FIELD.

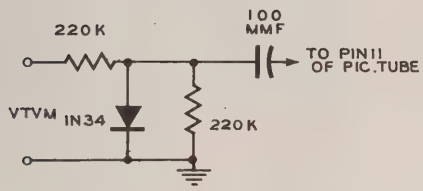


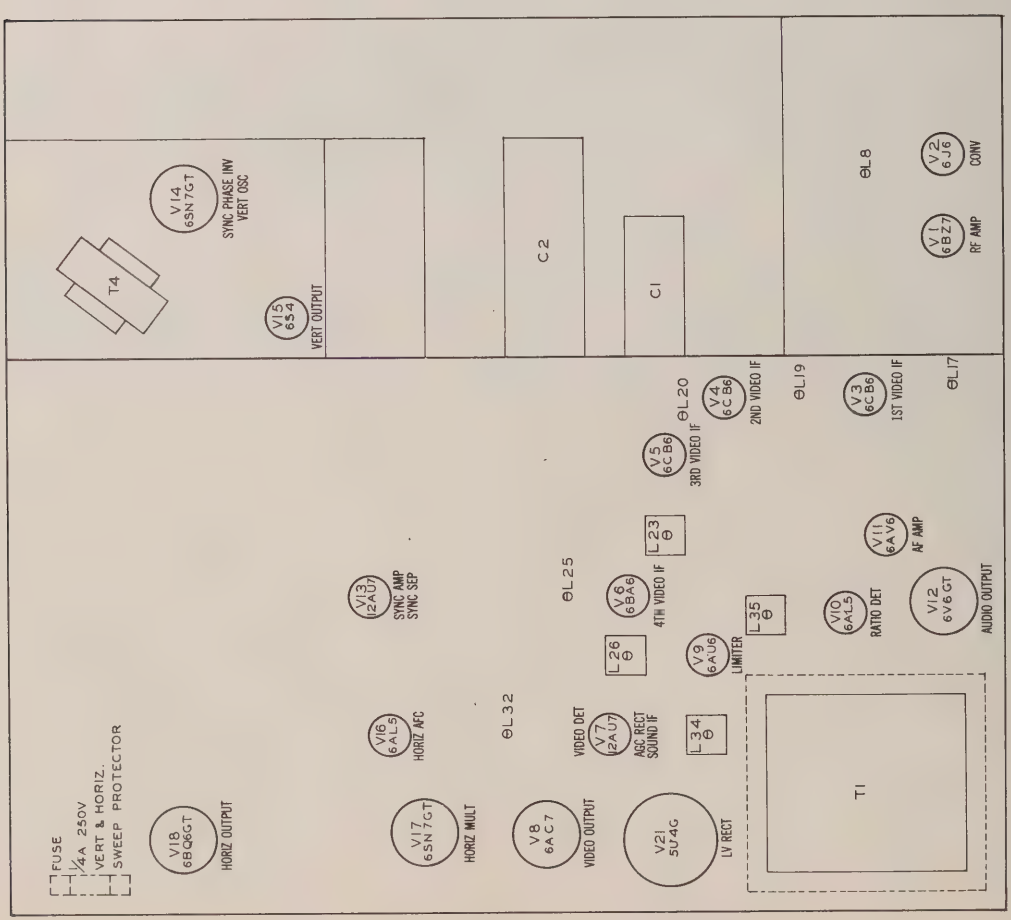
FIG. 4

FIG. 5

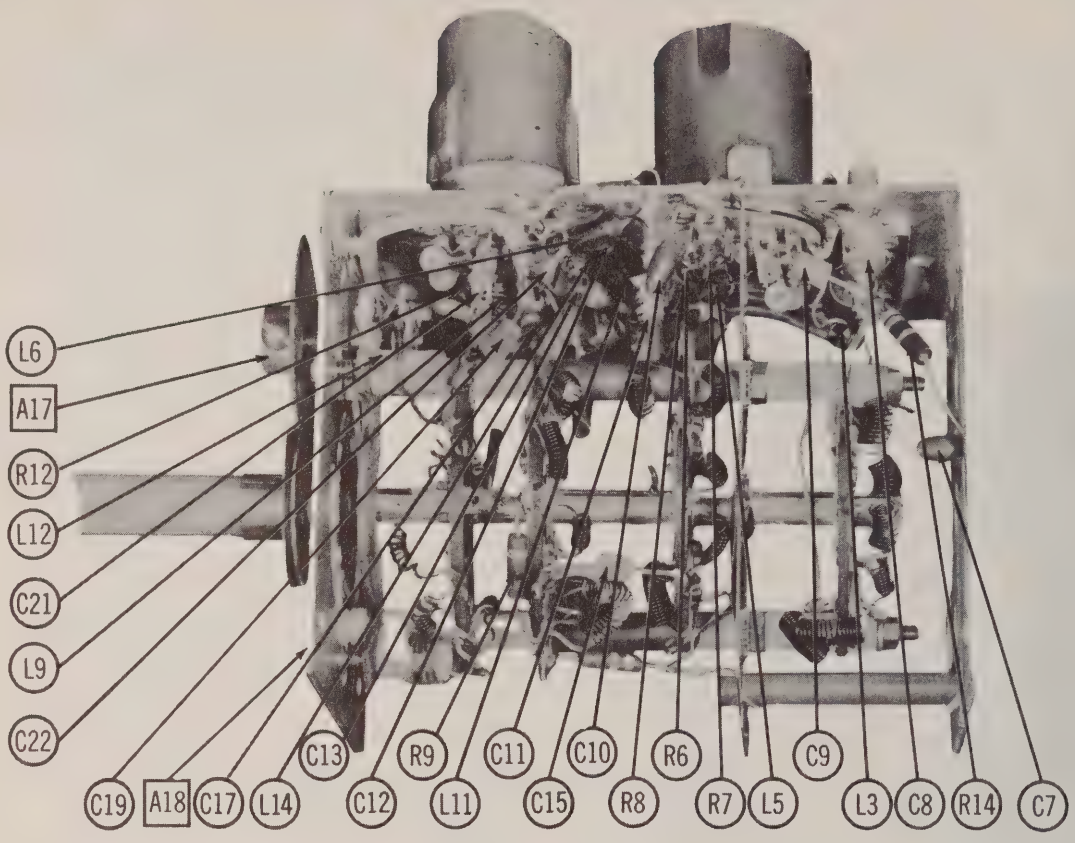
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BZ7	†5.3KΩ	†450KΩ	INF	.3Ω	0Ω	INF	1.1 Meg.	0Ω	0Ω
V 2	6J6	†11.5KΩ	†3.8KΩ	0Ω	.3Ω	220KΩ	15KΩ	0Ω		
V 3	6CB6	900KΩ	47Ω	0Ω	.1Ω	†3.3KΩ	†3.3KΩ	0Ω		
V 4	6CB6	900KΩ	47Ω	.1Ω	0Ω	†3.1KΩ	†3.1KΩ	0Ω		
V 5	6CB6	880KΩ	47Ω	0Ω	.1Ω	†3KΩ	†3KΩ	0Ω		
V 6	6BA6	1.8Ω	0Ω	.1Ω	0Ω	†3.1KΩ	†3.1KΩ	120Ω		
V 7	12AU7	540KΩ	8.1KΩ	4.8KΩ	.1Ω	.1Ω	†3KΩ	120KΩ	150Ω	0Ω
V 8	6AC7	0Ω	0Ω	280Ω	1Meg	430Ω	†2KΩ	.1Ω	†4.8KΩ	
V 9	6AU6	680KΩ	0Ω	.1Ω	0Ω	†10KΩ	†10KΩ	0Ω		
V 10	6AL5	10KΩ	10KΩ	0Ω	.1Ω	INF	0Ω	INF		
V 11	6AV6	10Meg	0Ω	0Ω	.1Ω	0Ω	0Ω	†200KΩ		
V 12	6V6GT	INF	.1Ω	†2.5KΩ	†15KΩ	1Meg	INF	0Ω	470Ω	
V 13	12AU7	15KΩ	2.2Meg	0Ω	.1Ω	.1Ω	51KΩ	0Ω	270KΩ	0Ω
V 14	6SN7GT	2.2Meg	#2.1Meg	0Ω	51KΩ	†4.6KΩ	5.8KΩ	.1Ω	0Ω	
V 15	6S4	INF	2.3KΩ	2.2Meg	.1Ω	0Ω	2.2Meg	INF	INF	#3.3KΩ
V 16	6AL5	4.8Meg	4.8Meg	.1Ω	0Ω	12KΩ	0Ω	12KΩ		
V 17	6SN7GT	5.7 Meg.	#25KΩ	1.2KΩ	105KΩ	#135KΩ	1.2KΩ	0Ω	.1Ω	
V 18	6BQ6GT	INF	0Ω	INF	†9KΩ	470KΩ	INF	.1Ω	300Ω	Top Cap #21Ω
V 19	6W4GT	INF	INF	800KΩ	INF	†127Ω	INF	#24	#24Ω	
V 20	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								Top Cap #430Ω
V 21	5U4G	INF	18KΩ	INF	22Ω	#24KΩ	23Ω	INF	18KΩ	
V 22	17HP4A	0Ω	260KΩ	Pin 6 †2KΩ	Pin 10 #24KΩ	Pin 11 110KΩ	Pin 12 .1Ω			

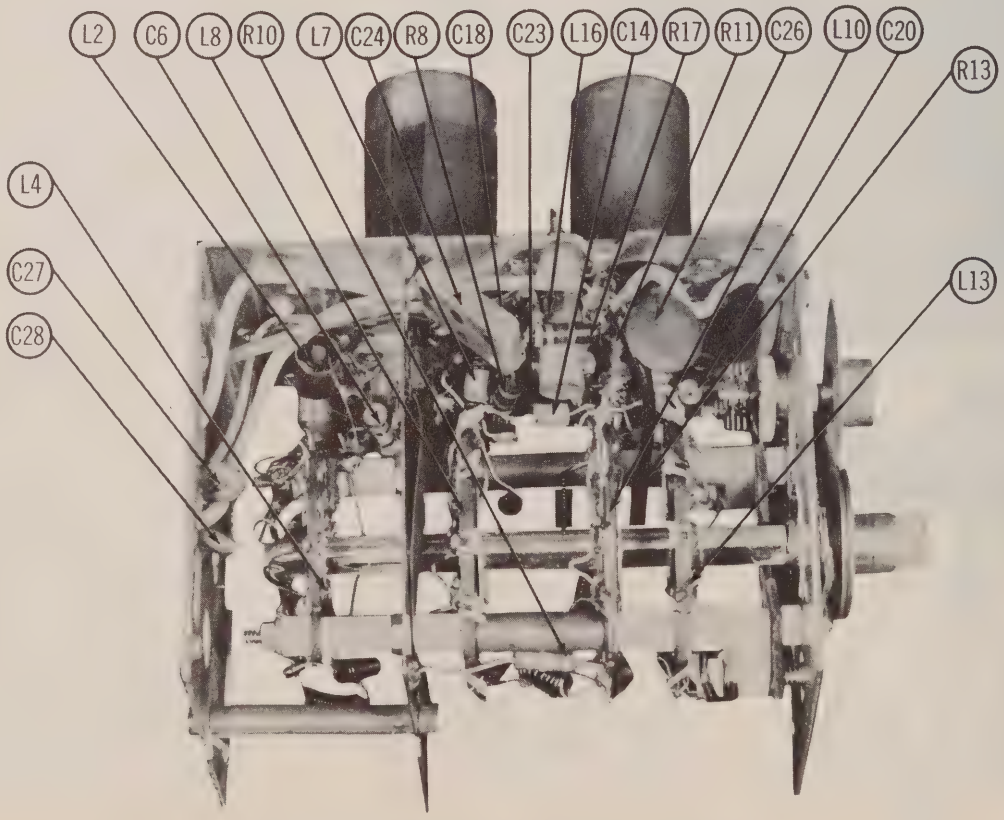
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
LOCAL-DISTANCE SWITCH IN "LOCAL" POSITION
† MEASURED FROM PIN 8 OF V21
# MEASURED FROM PIN 3 OF V19



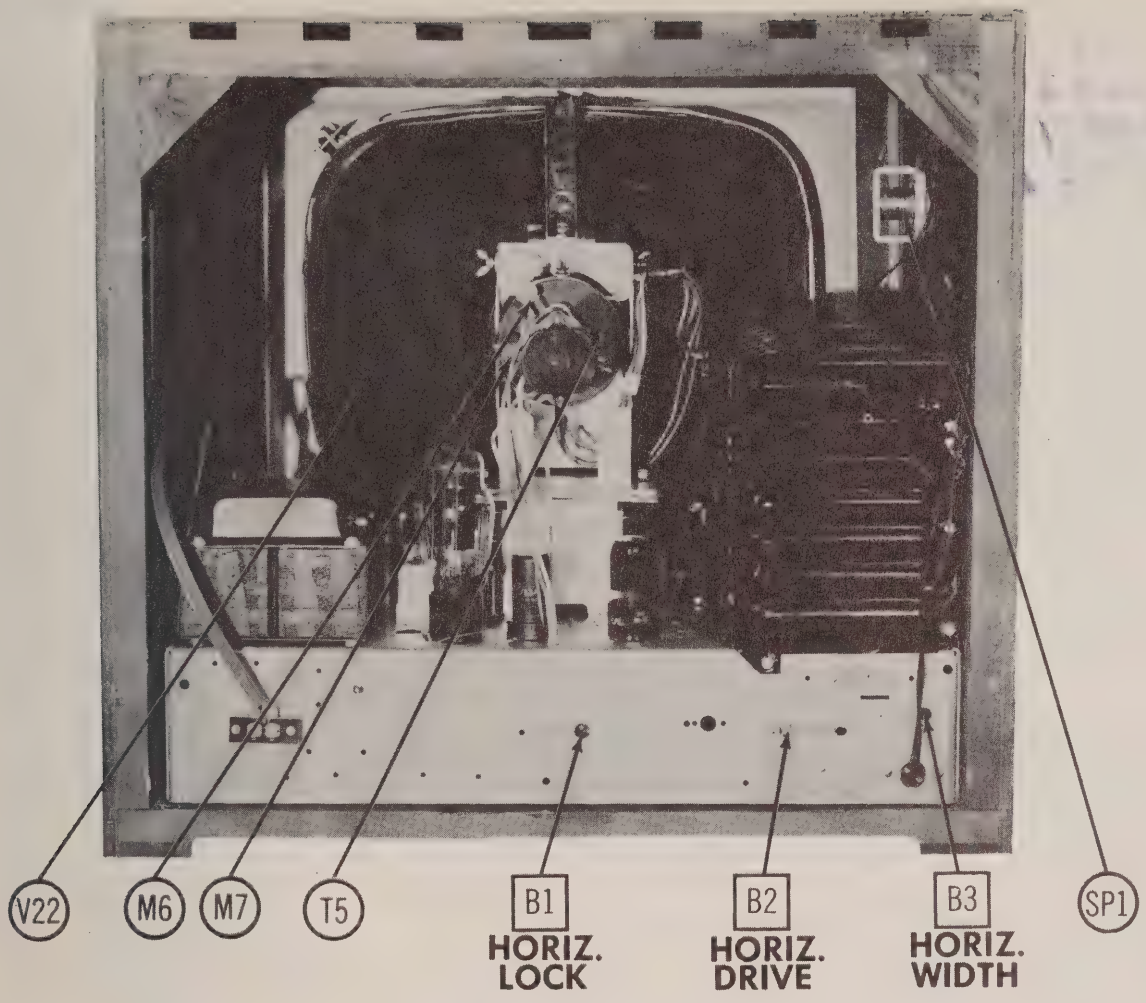
TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control at the mid-point of its range and adjust the horizontal lock slug (B1) until the picture synchronizes horizontally.

Turn B1 clockwise until picture loses sync, then counter-clockwise until picture just falls into sync. Turn the horizontal hold control fully counter clockwise and momentarily switch to another channel and back again. The picture should be out of sync. Note the number of diagonal bars present in the picture. Repeat the procedure with the horizontal hold in extreme clockwise rotation and again note the number of diagonal bars. They should be the same for both positions of the horizontal hold. Adjust B1 for this condition.

Adjust the horizontal drive trimmer (B2) to the maximum counter clockwise position without the presence of a vertical white line or compression of the center of the picture. Adjust the width slug (B3) for picture slightly wider than necessary to fill the picture mask horizontally.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Remove 5 wood screws. Remove rear cover.
3. Disconnect speaker. Remove 4 speaker screws. Remove speaker.
4. Remove 6 chassis bolts. Remove chassis.

Note: FOR PICTURE REMOVAL IT IS NECFSSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ARVIN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	5BZ7	5BQ7	9AJ	
B	RF Amplifier	6BQ7	6BQ7	9AJ	
V2	Converter	6J6	6J6	TBF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	4th. Video IF Amp.	6BA6	6BA6	TBK	
V7	Video Detector - AGC Rectifier - Sound IF Amp.	12AU7	12AU7	9A	
V8	Video Output	6AC7	6AC7	8N	
V9	Limiter	6AU8	6AU6	TBK	
V10	Ratio Detector	6AL5	6AL5	6BT	
V11	AF Amplifier	6AV6	6AV6	7BT	
V12	Audio Output	6V6GT	6V6GT	7AC	
V13	Sync Amplifier - Sync Separator	12AU7	12AU7	9A	
V14	Sync Phase Inv. - Vert. Oscillator	6SN7GT	6SN7GT	8BD	
V15	Vert. Output	6S4	6S4	9AC	
V16	Horiz. AFC	6AL5	6AL5	6BT	
V17	Horiz. Mult	6SN7GT	6SN7GT	8BD	
V18	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V19	Damper	6W4GT	6W4GT	4CG	
V20	HV Rectifier	1B3GT	1B3GT	3C	
V21	LV Rectifier	5U4G	5U4GT	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: ARVIN PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V23A	17HP4A		12C	
B	17RP4		12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ARVIN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	⌀60	400	E22422-13	AFH4-88					FP431.4	TVL-4709
B	⌀50	350		PRS-50/40						
C	⌀5	450								
D	20	25								
C2A	⌀80	350	E22422-14	AFH3-182					FP420.6	TVL-3722
B	⌀50	350		PRS450/20					LTC75	LTVA-1613
C	100	50								
D	⌀20	450								
C3	20	450	A25452	PRS450/20		BR2045A			TC15	TVA-1709
C4	100	25	A25454	PRS25/100		BRH25A			TC2501	LVA-1207
C5	4	150	A25453	BR415		BR415			TC40	TVA-1402
C6	4									
C7	1.0			BPD-0008	DD-801	TM5T8	801-001	DC-521		5HK-D1
C8	7.5									
C9	1.5									
C10	1.0			BPD-0008	DD-801	TM5T8	801-001	DC-521		5HK-D1
C11	470									
C12	100			SII00	D6-101	TM5T1	GP1K-101	UC-531		5GA-T1
C13	2									
C14	56									
C15	1.6									
C16	100			SII00N750	TCN-100				NT-531	5TCU-T1
C17	470			SI470	D6-471	TM5T5	GP2K-471	UC-5347		5GA-T47
C18	100			SII00	D6-101	TM5T1	GP1K-101	UC-531		5GA-T1
C19	39						N330K-1R5			
C20	1.5			SII0N750	TCN-10		N750K-100		NT-541	5TCU-Q1
C21	10			BPD-0008	DD-801	TM5T8	801-001		DC-521	5HK-D1
C22	800			SII15	D6-150		GP1K-150		UC-5415	5GA-Q15
C23	15			1469-00025		5R5T25			MCB240	
C24	240	500		BPD-001	DD-102	TM5D1	801-001	DC-521		5HK-D1
C25	1000		A23078	BPD-005	DD-502	TM5D5	811-005	DC-525		5HK-D5
C26	5000		C21674	BPD-005	DD-502	TM5D5	811-005	DC-525		5HK-D5
C27	800			BPD-0008	DD-801	TM5T8	801-001	DC-521		5HK-D1
C28	800			BPD-0008	DD-801	TM5T8	801-001	DC-521		5HK-D1
C29	5000		C21674	BPD-005	DD-502	TM5D5	811-005	DC-525		5HK-D5
C30	36						N330K-360			
C31	8.2		C20206-13	SI8.2NP0			N90K-8R2			
C32	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521		5HK-D1
C33	610		C20351-1							
C34	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521		5HK-D1
C35	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521		5HK-D1
C36	47						N330L-470			
C37	47		C20206-19				N220L-470			
C38	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521		5HK-D1
C39	610		C20351-1							
C40	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521		5HK-D1
C41	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521		5HK-D1
C42	39						N330K-390			
C43	47		C20206-19				N220L-470			
C44	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521		5HK-D1
C45	610		C20351-1							
C46	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521		5HK-D1
C47	47		C20206-19				N220L-470			
C48	2.2		C20205-7				N220K-2R2			
C49	36						N330K-360			
C50	610		C20351-1							
C51	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521		5HK-D1
C52	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521		5HK-D1
C53	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521		5HK-D1
C54	68		D25530-13				N220L-680			

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ARVIN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C55	5000		C21674	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C56	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C57	8.2		C20206-13	SI8.2NP0			N90K-8R2			
C58	68		D25530-13				N220L-680			
C59	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C60	.22	200	D25455-224	P488-33		DF-104	PTE4P22	PT4025	2TM-P22	
C61	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C62	.22	200	D25455-224	P488-33		DF-104	PTE4P22	PT4025	2TM-P22	
C63	.1	400	D25455-104	P488-1		DF-104	PTE4P1	PT401	4TM-P1	
C64	.1	200	D25455-104	P288-1		DF-104	PT2P1	PT401	2TM-P1	
C65	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C66	47			SI47NP0	TC2-47		N90K-470	ZT-5447	5TCC-Q47	
C67	.1	400	D25462-104	P488-1		DF-104	PTE4P1	PT401	4TM-P1	
C68	.047	400	D25462-473	P488-047		DF-503	PTE4T47	PT4147	4TM-S47	
C69	68		D25530-13				N220L-680			
C70	5000		C21674	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C71	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C72	5000		C21674	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C73	500	500	C20190-501	1460-00008	D6-501		SW5T5	GP3K-501	1FM-35	
C74	.0033	600	D25461-332	P488-0033	D6-332		PTE6D33	GP3-333-332	PT633	6TM-D3
C75	.047	200	D25455-472	P288-047	DF-503		PTE4S47		2TM-S47	
C76	.0047	600	D25461-472	P488-0047	D6-472		PTE6D47	GP2-333-472	PT6D47	6TM-D47
C77	47	300	C20641-470	1469-00005	D6-470		SW5Q5	GP1K-470	MC235	1M-45
C78	.1	400	D25462-104	P488-1		DF-104	PTE4P1		PT401	4TM-P1
C79	.01	400	D25462-103	P488-01	DB-103	DF-104	PTE4P01	GP3-333-103	PT411	4TM-S1
C80	.0047	600	D25461-472	P488-0047	D6-472		PTE6D47	GP2-333-472	PT6247	6TM-D47
C81	.22	400	D25462-224	P488-22			PTE4P22		PT4025	4TM-P22
C82	270	500	C20290-271	1460-00003			SR5T3		MCB241	MB-33
C83	.047	600	D25462-473	P488-047	DF-503		PTE6S47		PT4147	6TM-S47
C84	.047	600	D25461-473	P688-047	DF-503		PTE6S47		PT4147	6TM-S47
C85	.47	200	D25455-474	P288-47			PJ2P5		PT405	2TM-P47
C86A	.0022			P688-0022			PTE6D22		PT6222	
B	.0047		⌖C24166	P688-0047	⌖PC-100		PTE6D47	⌖1405-01	PT6247	⌖101C1
C	.0047			P688-0047			PTE6D47		PT6247	
C87	.0047	600	C20374-472	P688-0047			PTE6D47		PT6247	6TM-D47
C88	.0015	600	D25461-152	P688-0015	D6-152		PTE6D15	GP2L-152	UC-5215	5HK-D15
C89	.047	600	D25461-473	P688-047	DF-503		PTE6S47		PT6147	6TM-S47
C90	.1	600	D25461-104	P688-1	DF-104		PTE6P1		PT601	6TM-P1
C91	.033	200	D25455-333	P488-033			PTE8S3		PT4133	6TM-S3
C92	.1	1000	D25470-104	P1086-1			PTE16P1		PT1601	MB-P1
C93	.1	400	D25462-104	P488-1	DF-104		PTE4P1		PT401	4TM-P1
C94	.047	600	D25461-473	P688-047	DF-503		PTE6S47		PT6147	6TM-S47
C95	.001	600	D25461-102	P688-001	D6-102		PTE6D1	GP2L-102	PT621	6TM-D1
C96	.001	600	D25461-102	P688-001	D6-102		PTE6D1	GP2L-102	PT621	6TM-D1
C97	.01	400	D25462-223	P488-01	D6-103		PTE4S1	GP2-333-103	PT411	4TM-S1
C98	.0047	600	D25461-472	P688-0047	D6-472		PTE6D47	GP2-333-472	PT6247	6TM-D47
C99	.047	600	D25462-473	P688-047	DF-503		PTE4S47		PT4147	4TM-S47
C100	3900	500	C20374-392	1464-004			SDR5D4			
C101	100	500	C20290-101	1469-00011			SR5T1		MCB235	MB-31
C102	.22	600	D25461-224	684-25			PTE6P25		PT6025	6TM-P22
C103	330	500	C20290-331	1469-00035						
C104	330	500	C20290-331	1469-00035						
C105	270	500	C20290-271	1469-0003			SR5T3		MCB241	MB-33
C106	.1	600	D25461-104	P688-1	DF-104		PTE6P1		PT601	6TM-P1
C107	.47	200	D25455-472	P288-47			PJ2P5		PT405	2TM-P47
C108	.1	400	D25462-104	P488-1	DF-104		PTE4P1		PT401	4TM-P1
C109	.047	600	D25461-473	P688-047			PTE6S47		PT6147	6TM-S47
C110	500	20000	A24994	HV20C	TV3-502	MM-C20TF	413-501		20DK-T5	
C111	.01	600	C20358-103	689ZGXY-01			PJ6S1		PT611	6TM-S1
C112	.01	600	C20358-103	689ZGXY-01			PJ6S1		PT611	6TM-S1
C113	1000		A23078	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	Note 2

Note 1. Some Models use .01MFD in this application (Part #D25-61-103)
⌖ Items C86A, C86B, C86C, R80A, R80B, R80C are combined in one unit.
Note 2. Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	100KΩ	1	E22464-34	QII-128	AG-49-S	AB-40	U-61	Brightness
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R1A
R2A	1.5Meg	1	E22464-36	QII-138	AG-83-S	AB-75	U-155	Vert hold
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R2A
R3A	25KΩ	1	E22464-38	QII-130	AG-40-S	AB-26	U-29	Horiz. hold
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R3A
R4A	3000Ω	2	E22464-20	QU-TI *	RTV-259			Vert linearity-Wire wound Panel
B	2.5Meg							Height-rear
R5A	1600Ω		E22464-27	**	RTV-358		UP152R	Contrast-Panel
B	250KΩ						UR254A	Volume-rear
C	Switch						US-26	Attach to R5B

* CONCENTRIKIT EQUIVALENT-KIT K-3, BASE ELEMENTS & SHAFTS W11-112 & P3-114 (Panel)
B11-239 & R2-124 (Rear)
** CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B17-110 & P3-204 (Panel)
B13-130 & R1-220 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	NOTES
R6	1Meg				
R7	750KΩ	5%		BTS-750K	5%
R8	470Ω			BTS-470	
R9	10KΩ			BTS-10K	
R10	220KΩ			BTS-220K	
R11	820Ω				
R12	15KΩ			BTS-15K	
R13	8200Ω			BTS-8200	
R14	4700Ω			BTS-4700	
R15	3300Ω			BTS-3300	
R16	1000Ω			BTS-1000	
R17	470Ω			BTS-470	
R18	15KΩ		C22381-153		

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	NOTES
R19	47Ω		C22381-470		
R20	1000Ω		C20061-102	BTS-1000	
R21	3300Ω		C20061-332	BTS-3300	
R22	150Ω		C20061-151	BTS-150	
R23	18KΩ	5%	C22382-183		
R24	47Ω		C22381-470		
R25	1000Ω		C20061-102	BTS-1000	
R26	3300Ω		C20061-332	BTS-3300	
R27	150Ω		C20061-151	BTS-150	
R28	1000Ω		C20061-102	BTS-1000	
R29	47Ω		C22381-470		
R30	1000Ω		C20061-102	BTS-1000	
R31	22 KΩ		C22381-223	BTS-22K	

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	NOTES
R32	120Ω		C22381-121	BTS-120	
R33	1000Ω		C20061-102	BTS-1000	
R34	150Ω		C20061-151	BTS-150	
R35	220KΩ		C22381-224	BTS 220K	
R36	560KΩ		C20061-564	BTS-560K	
R37	220KΩ		C22381-224	BTS 220K	
R38	560KΩ		C20061-564	BTS-560K	
R39	100KΩ		C22381-104	BTS 100K	
R40	220KΩ		C20061-224	BTS 220K	
R41	4700Ω		C22381-472	BTS-4700	
R42	100Ω		C22381-101	BTS-100	
R43	3300Ω	5%	C22382-332	BTS-3300-5%	
R44	1 Meg		C20061 105	BTS-1Meg	
R45	150Ω		C22381-151	BTS-150	
R46	10KΩ	1	C20061-103	BTS-10K	
R47	4700Ω	5% 2	C25467-472	BTS-4700-5%	
R48	220KΩ	1	C22381-224	BTS 220K	
R49	220KΩ	1	C22381-224	BTS-220K	
R50	220KΩ	1	C22381-224	BTS-220K	
R51	100KΩ	1	C22381-104	BTS-100K	
R52	4700Ω	1	C2007D-472	BTA-4700	
R53	120KΩ	1	C22381-124		
R54	150Ω	1	C20061-151	BTS-150	
R55	1000Ω	1	C22381-102	BTS-1000	
R56	680KΩ	1	C20061-684	BTS-680K	
R57	12KΩ	1	C20070-123	BTA-12K	
R58	22KΩ	1	C20070-223	BTA-22K	
R59	390Ω	5% 1	C22382-391	BTS-390-5%	
R60	47KΩ	1	C22381-473	BTS-47K	
R61	10KΩ	5% 1	C22382-103	BTS-10K-5%	
R62	10KΩ	5% 1	C22382-103	BTS 10K-5%	
R63	10Meg	1	C20061-106	BTS-10Meg	
R64	150KΩ	1	C22381-154	BTS-150K	
R65	47KΩ	1	C22381 105	BTS-47K	
R66	1Meg	1	C22381-105	BTS-1Meg	
R67	470Ω	1	C2007D 471	BTA-470	
R68	2200Ω	2	C25228-222	BTA-2200	
R69	270KΩ	1	C20061-274	BTS-270K	
R70	2.2Meg	1	C22381-225	BTS-2.2Meg	
R71	47KΩ	1	C20070-473	BTA-47K	
R72	22KΩ	1	C22381-223	BTS-22K	
R73	270KΩ	1	C22381-274	BTS 270K	
R74	560KΩ	1	C22381-564	BTS-560K	
R75	1800Ω	1	C22381-182	BTS-1800	Note 1
R76	820Ω	1	C22381-821	BTS-820	Note 1

⌖ Items R80A, R80B, R80C, C86A, C86B, C86C are combined in one unit.
Note 1. Some models use a 1500Ω resistor in this application.
Note 2. Some models use a 470KΩ resistor in this application.
Note 3. Some models use a 220KΩ resistor in this application.
Note 4. Not used in all models.

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	NOTES
R77	47KΩ	1	C22381-473	BTS 47K	
R78	11001-5%	1	C22382-112	BTS 1100-5%	
R79	4700Ω	1	C22381-472	BTS-4700	
R80A	22KΩ			BTS-22K	
B	8200Ω		⌖C24166	BTS-8200	
C	8200Ω			BTS-8200	
R81	22KΩ		C22381-223	BTS-22K	
R82	100KΩ	1	C22381-104	BTS 100K	
R83	10Meg	1	C22381-106	BTS-10Meg	
R84	1.5Meg	5% 1	C22382-155	BTS-1.5Meg	
R85	470KΩ	5% 1	C22381-474	BTS-470K	
R86	1Meg	5% 1	C22382-105	BTS-1Meg	
R87	10KΩ	1	C22381-103	BTS-10K	
R88	2.2Meg	1	C22381-225	BTS-2.2Meg	
R89	1500Ω	1	C20061-152	BTS-1500	
R90	8200Ω	1	C22381-822	BTS-8200	
R91	22KΩ	1	C22381-223	BTS-22K	
R92	100KΩ	5% 1	C22382-104	BTS-100K-5%	
R93	100KΩ	5% 1	C22382-104	BTS-100K-5%	
R94	4.7Meg	1	C22381-275	BTS-4.7Meg	
R95	1Meg	1	C20061-105	BTS-1Meg	Note 2
R96	12KΩ	2	C20302-123	BTS-12K	
R97	1200Ω	1	C22381-122	BTS-1200	
R98	8200Ω	1	C20070-822	BTA 8200	
R99	91KΩ	5% 1	C22382-913	BTA-91K-5%	
R100	180KΩ	1	C20061-184	BTS-180K	
R101	8200Ω	1	C22381-822	BTS-8200	
R102	15KΩ	1	C20070-153	BTA-15K	
R103	470	1	C20061-470		
R104	470KΩ	1	C22381-474	BTS-470K	
R105	300Ω	5		1 3/4A-300	
R106	27KΩ	2	C20302-273	BTS-27K	
R107	27KΩ	2	C20302-273	BTS-27K	
R108	27KΩ	2	C20302-273	BTS-27K	
R109	1800Ω	3	C20302-182	BTS-1800	
R110	3.9Ω	1	C20308-39		
R111	470KΩ	1	C20103-474		
R112	15KΩ	1	C22381-153	BTS-15K	
R113	5000Ω	10		1 3/4A-5000	Note 3
R114	5000Ω	10		1 3/4A-5000	Note 4
R115	15KΩ	2		BTS-15K	Note 4
R116	220KΩ	1	C20061-224	BTS-220K	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: ARVIN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC	650VCT	5VAC	6.3VAC ② 8A	E25433	P-8166①②	P-3070	TP-319	R-39Bc
	② 2A	.280ADC	② 3A	SEC. 4 6.3VAC ② 1.1A					

① Parallel the 6V. windings
② Drill new mtg. holes

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: ARVIN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	190Ω	105Ω	C22446-1 ① D22466-1 ①	A-8122 ③	A-4003	TBO-3 ③	A-97Y	Vert. Osc. Trans.
T3	430.7Ω Tap ② 20.7Ω	36.3Ω Tap ② 3.7Ω, 11.7Ω SEC. 2 OΩ	E24989					Horiz. Output Trans.
T4	1.5KΩ		C24990	A-8141	A-3039		A-104X	Vert. Output Trans.
T5A	Tap ② 4Ω		D24807	DY-9	MDF-70 ②	TY-3	Y-17 ②	Horiz. Deflection Coils
B	46Ω							Vert. Deflection Coils

① Alternate vert. osc. trans.
② Alter horiz. deflection coil network
③ Drill one new mtg. hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ARVIN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T6	4.5KΩ	3.4Ω	300Ω	.4Ω	C-24776-1	A-3849	A-3019	RO-9 ①	S-5X	① Drill one new mtg. hole

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: ARVIN PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3.4Ω	D23405 AE25407-1 ① AD25406-2 ②	ST-108 Mod. P6-X	6A1	① Speaker for Model 6179TM ② Alternate spkr. for model 6175TM

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	ARVIN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.150A	127Ω	2.9 Hy.	C-23087-1	C-2327	C-2991 ①	TR-3300 ①	C-13X ①

① Drill one new mtg. hole

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	ARVIN PART No.	MERIT PART No.	IRC PART No.	
L2	Ant. Trans.	0Ω	0Ω				
L3	Ant. Coil	0Ω					Channel 13
L4	Ant. Coils	0Ω					
L5	RF Choke	0Ω					
L6	Fil. Choke	0Ω		A22456			
L7	RF Coil	0Ω					Channel 13
L8	RF Coils	0Ω					
L9	Mixer Grid Coil	0Ω					Channel 13
L10	Mixer Grid Coils	0Ω					
L11	RF Choke	1.2Ω					
L12	Osc. Coil	0Ω					Channel 13
L13	Osc. Coil	0Ω					
L14	Fil. Choke	0Ω		A22456			
L15	Fil. Choke	.2				CL-1	.56 Microhenry
L16	Conv. Plate	0Ω					
L17	1st. Video IF	0Ω		C25410			Includes Trap
L18	Fil. Choke	0Ω		A23095			
L19	2nd. Video IF	0Ω		C25411			Includes Trap
L20	3rd. Video IF	0Ω		C25412			Includes Trap
L21	Grid Choke	1.8Ω		E22500-19			20 Microhenries-wound on 18KΩ resistor
L22	Fil. Choke	0Ω		A23095			
L23	4th. Video IF	0Ω		C25413			Includes Trap
L24	Grid Choke	1.8Ω		E22500-19			20 Microhenries-wound on 18KΩ resistor
L25	Cathode Trap	0Ω	0Ω	C25415			
L26	5th. Video IF	0Ω		C25474			Includes Trap
L27	Cathode Choke	1.8Ω		D22500-8			20 Microhenries -wound on 12KΩ resitor
L28	Series Peak. Coil	21Ω		D25468-6	TV-180		40 Microhenries
L29	Series Peak. Coil	.2Ω		A25916	TV-189		1.7Microhenries
L30	Shunt Peak. Coil	3.8Ω		D25468-5	TV-181		100 Microhenries
L31	Series Peak. Coil	6.6Ω		D25468-8	TV-185*		250 Microhenries - wound on 16KΩ resistor
L32	4.5MC Trap	1Ω		C25609	TV-151		
L33	Shunt Peak Coil	5.5Ω		D25468-1	TV-184		185 Microhenries
L34	Sound IF	1.5Ω		C25543			Tertiary .9Ω
L35	Ratio Detect.	4.2Ω	.2ΩCT	T C23	TV-110		
L36	Horiz. Osc.	60Ω		C23449	TV-163		
L37	Width Coil	12Ω	20Ω	C24991			

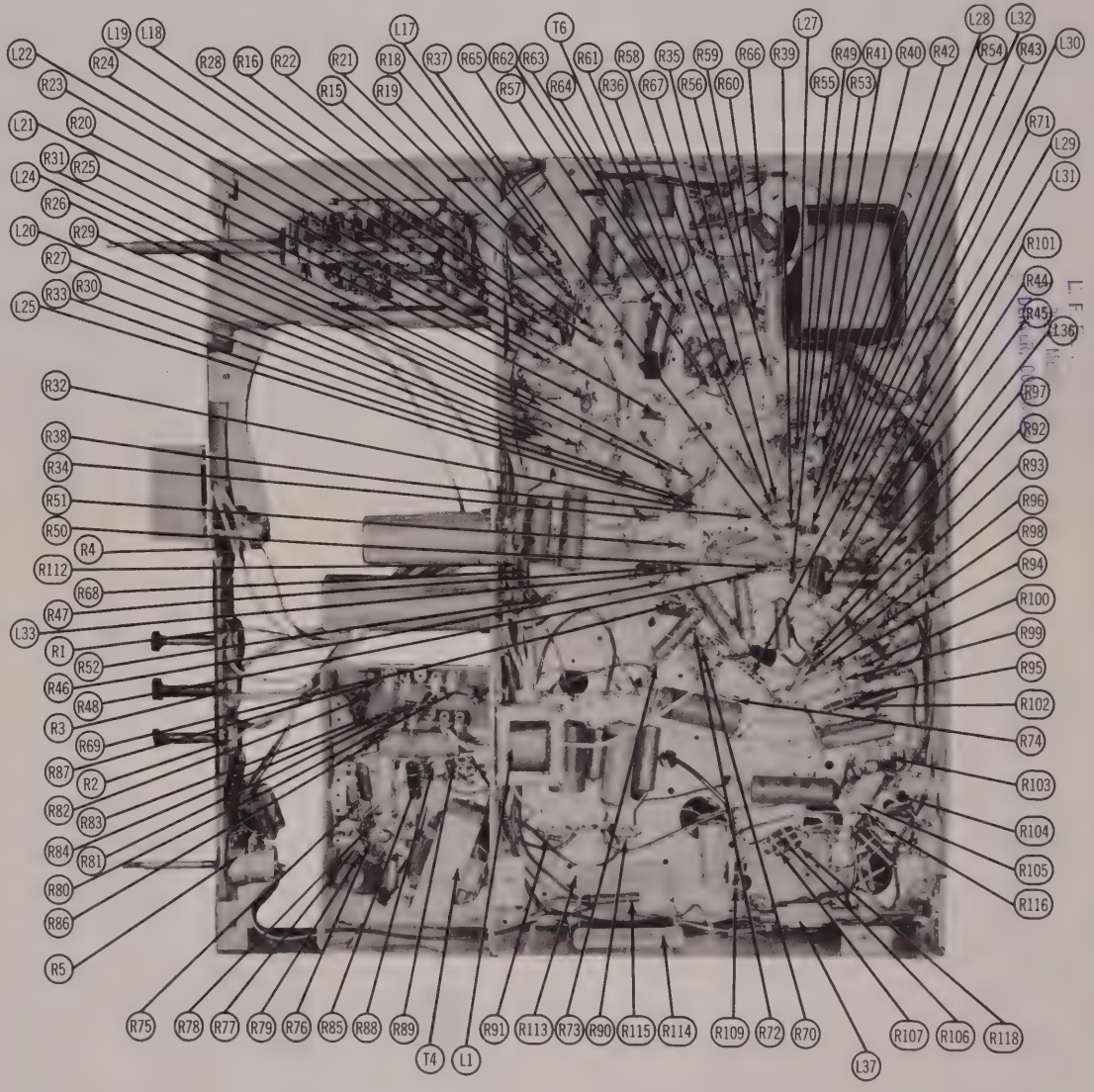
*Parallel with 16KΩ resistor

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ARVIN PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG (P/T)	1/4A. 250V.			318.250		GJV-1/4A.	

MISCELLANEOUS

ITEM No.	PART NAME	ARVIN PART No.	NOTES
M2	RF Tuner	E25702-1	TT6-B
M3	Switch	A25525	Local-Distance
M4	IF Trap	A25255	
M5	FM Trap	A25907	
M6	Centering Magnet	D25626	
M7	Ion Trap	C25662	
B2	Trimmer	A24528	Horiz. Drive (40-370MMF)



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

DEWALD MODEL F-404

PROPERTY OF
L. F. BLANK[illegible] H.P
3924 MEADE ST.
DENVER, COLORADO

DEWALD
MODEL F-404

DEWALD
MODEL F-404

TRADE NAME	Dewald Model F-404
MANUFACTURER	Dewald Radio Mfg. Co., 35-15 37th Ave., Long Island City, N.Y.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Four)	12BE6 Conv., 12AT6 Det-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .250 Amp. @ 117 volts AC
TUNING RANGE—BROADCAST	535-1700 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Disconnect antenna hank during alignment.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator to B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to stator lug of rear section of tuning gang. Low side to B-.	455 KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1700 KC	"	"	A3	"
3.		Loop	1400 KC	Tune to 1400 KC	"	A4	Place single turn loop of wire around antenna coil. Connect high side of generator to loop and radiate signal into receiver. Adjust A4 for maximum output.

After alignment replace chassis in cabinet, turn tuning gang fully closed and set last index mark at low frequency end of dial opposite pointer on cabinet.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		DEWALD PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	Det-AVC-AF Amp	12AT6	12AT6	7BT	
V3	Audio Output	50C5	50C5	7CV	
V4	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	DEWALD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	40	150	2033	PRS150/40-40		BRD4415A		TCD48	TVA-2445	
B	40	150								
C2	.05	200	2000A	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C3	220			SI220	D6-221	5W5T25	GP2K-221	UC-5322	5GA-T22	
C4	2000			BPD-002	DD-202	TM5D2	801-002	DC-522	5HK-D2	
C5	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C6	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C7	.05	400	2000A	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C8	.05	400	2000A	P488-05	DF-503	PTE4S5		PT415	4TM-S5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DEWALD PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	2 Meg	½	3044A	Q13-139	AG-66-Z	AB-76	U-55	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	KB-1	US-26	Attach to R1A

RESISTORS

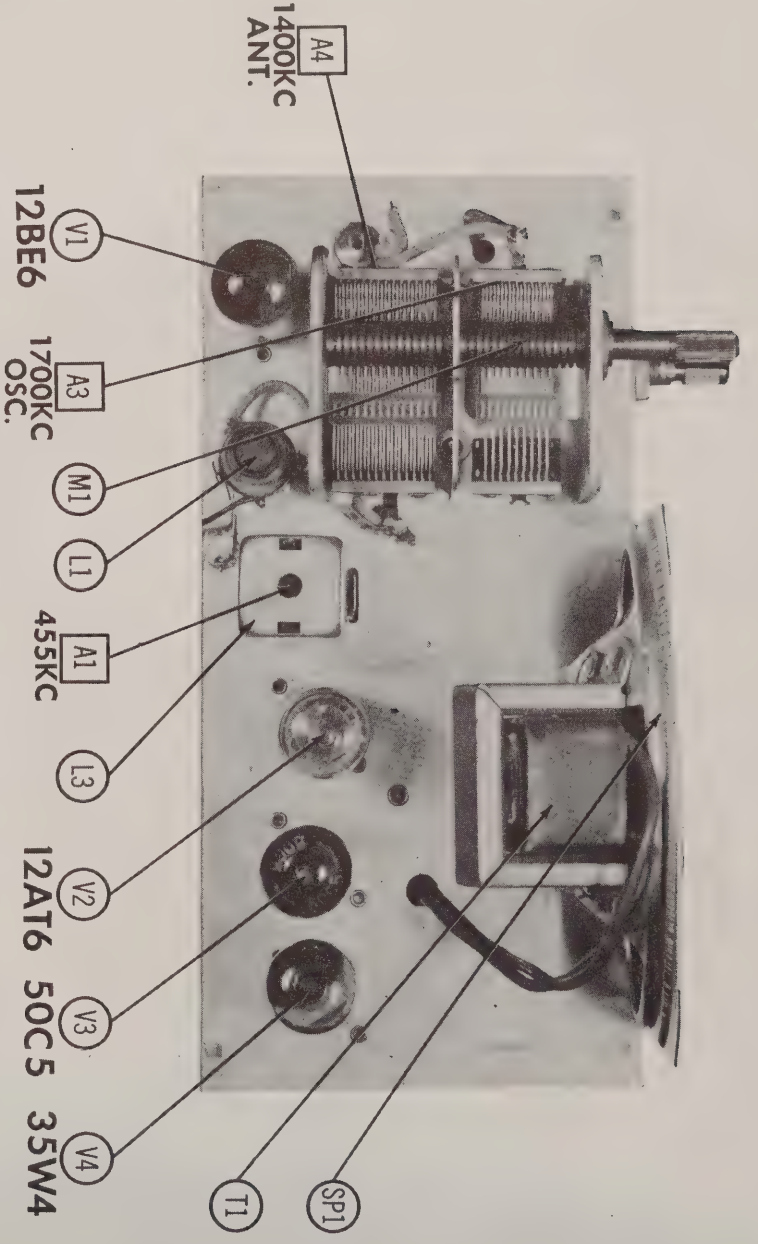
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DEWALD PART No.	IRC PART No.	
R2	22KΩ	½		BTS-22K	
R3	4.7Meg	½		BTS-4.7Meg	
R4	10Meg	½		BTS-10Meg	
R5	470KΩ	½		BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DEWALD PART No.	IRC PART No.	
R6	330KΩ	½		BTS-330K	
R7	1500Ω	1		BTA-1500	
R8	15Ω	½			
R9	27Ω	2			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		DEWALD PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	2.3KΩ	3.4Ω	213Ω	.64Ω	Part of spkr.	A-3332	A-2928 ①	RO-2 ①	S-1X ①	① Drill one new mtg. hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	DEWALD PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.4Ω	7003C-5	ST-113 Mod. P4-X	4A07	

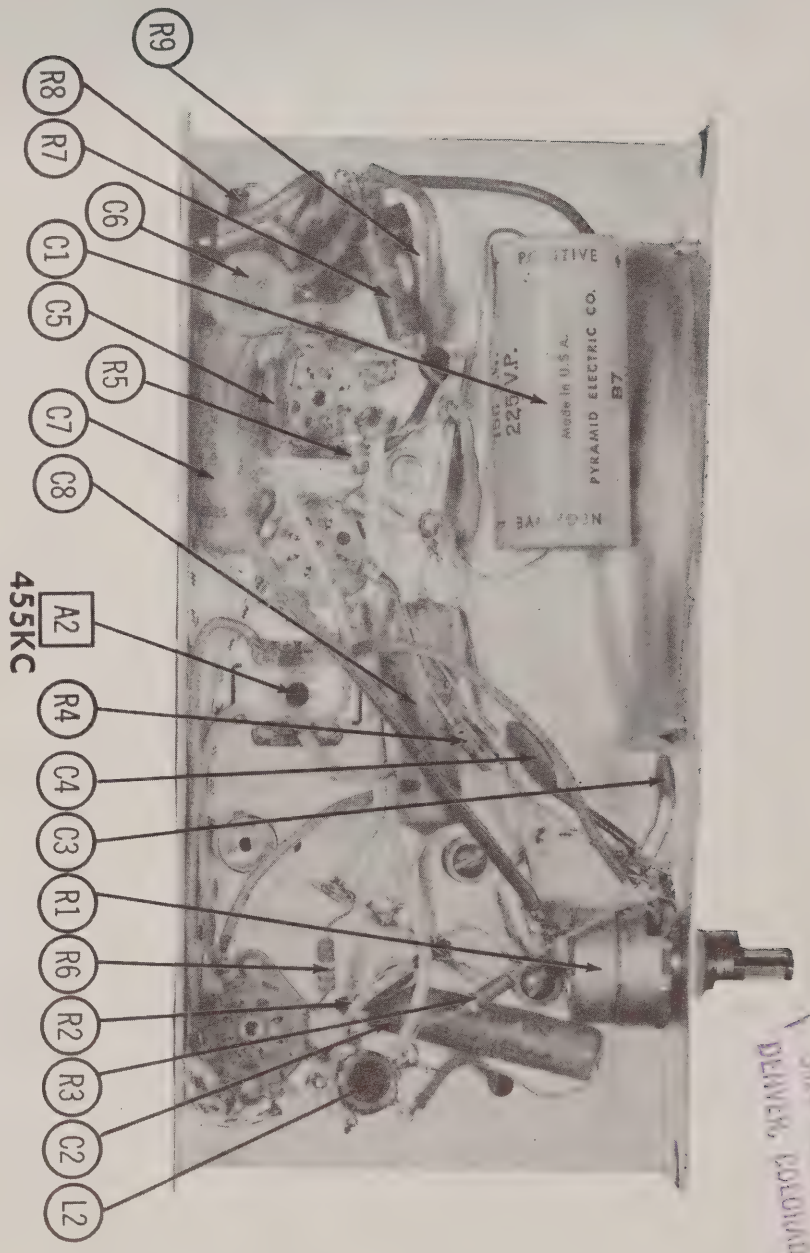
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	DEWALD PART No.	MERIT PART No.	
L1	Ant Trans	65Ω	2.6Ω	1140		
L2	Osc Coil	.6Ω	5.7Ω	1139		
L3	1st IF	21Ω	21Ω	1091B-6		Primary Tapped ⓐ 18Ω

MISCELLANEOUS

ITEM No.	PART NAME	DEWALD PART No.	NOTES
M1	2 Gang Var. Cap	2065-2	21-460MMF; 11-190MMF
	Knob	4178-1	Tuning (Ivory)
	Knob	4178-2	Tuning (Walnut)
	Knob	4179-1	Volume (Ivory)
	Knob	4179-2	Volume (Walnut)
	Cabinet	4181-1	Ivory
	Cabinet	4181-2	Walnut
	Cabinet Back	4180	

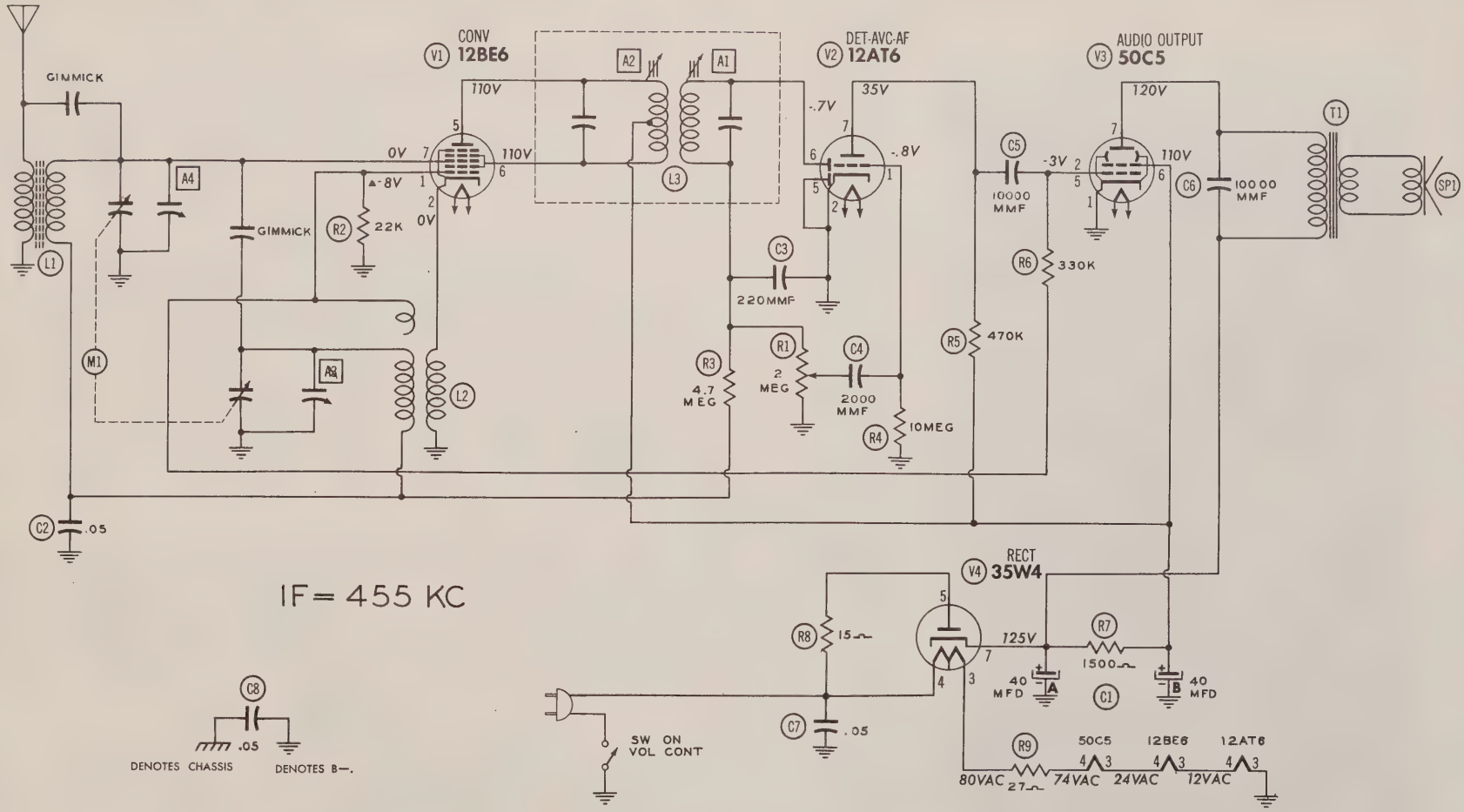
CHASSIS—BOTTOM VIEW



DEWALD
MODEL F-404

DEWALD
MODEL F-404

SET 181 FOLDER 5



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.6Ω	12Ω	24Ω	†1.5KΩ	†1.5KΩ	6.7Meg
V 2	12AT6	10Meg	0Ω	0Ω	12Ω	2Meg	2Meg	†470KΩ
V 3	50C5	0Ω	350KΩ	24Ω	74Ω	350KΩ	†1.5KΩ	213Ω
V 4	35W4	INF	INF	101Ω	136Ω	151Ω	118Ω	60KΩ

MEASURED FROM PIN 7 OF V4
▲ TAKEN WITH VACUUM TUBE VOLTMETER

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A PHOTOFACT STANDARD NOTATION SCHEMATIC

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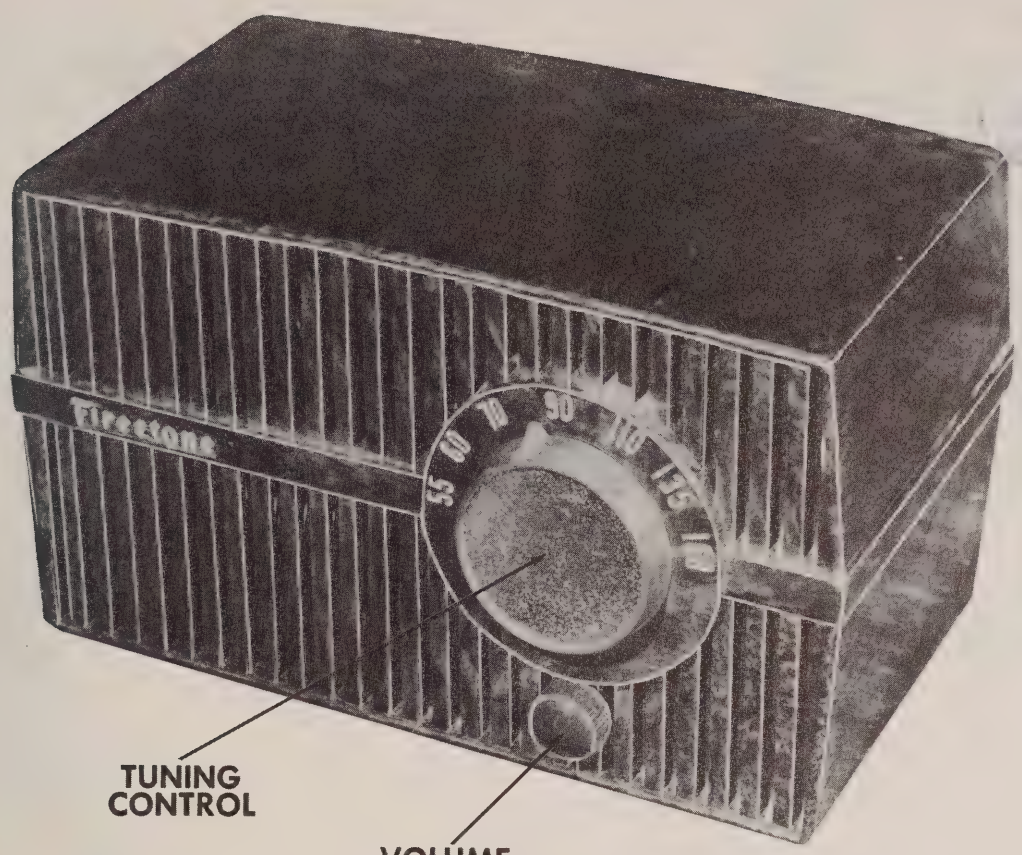
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

FIRESTONE
MODELS 4-A-101, 4-A-102

FIRESTONE
MODELS 4-A-101, 4-A-102



FIRESTONE
MODELS 4-A-101, 4-A-102

TRADE NAME	Firestone Models 4-A-101, 4-A-102 (Code 297-2-3419)
SUPPLIER	Firestone Tire & Rubber Co., 1200 Firestone Pkwy., Akron, Ohio
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Four)	Types 12AU6 Conv., 12AV6 Det.-AVC-AF Amp., 50C5 Audio Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC/DC — RATING .26 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to stator lug on rear section of tuning gang. Low side to B-.	455 KC (400~ Mod.)	Point of non-interference	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	" "	"	1620 KC	Tuning gang fully open	"	A3	"
3.		Loop	1400 KC	Tune to 1400 KC signal	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

After alignment replace chassis in cabinet, turn tuning gang fully closed and set pointer parallel with base of cabinet at low frequency end of dial.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

FIRESTONE
MODEL 4-A-101 (Code 297-2-3419)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Converter	12AU6	12AU6	7BK	
V2	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
V3	Audio Output	50C5	50C5	7CV	
V4	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	40	150	N-8442	PRS150/40-20-20		EDL4215C		TN129	TVA-3423	Blue
B	20	150								Red
C	20	15								Yellow
C2	50		N-6385	SI50	D6-500	TM5Q5	GP1K-500	UC-545	5GA-Q5	
C3	100		N-6015	SI100	D6-101	TM5T1	GP1K-101	UC-101	5GA-T1	
C4	.003	600	N-2063	P688-003	D6-302	PTE6D2	GP2-333-302	PT623	6TM-D3	
C5A	.005		♦N-8215		♦PC-71		♦1406-02		♦104C5	Note 1
B	250									Note 1
C										Note 1
C6	.01	400	N-1344	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C7	.05	400	N-1346	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C8	.05	200	N-1345	P288-05	DF-503	PJ2S5		PT415	2TM-S5	

Note 1. C5A, C5B, C5C may be single units in some models, in which case C5A part no. is N-4894, C5B part no. is N-6488 and C5C is not used.

♦ Items C5A, C5B, C5C, R4A, R4B are combined in one unit. When replacing items separately C5B and C5C should total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2Meg	½	N-7142	Q13-139	AG-66-Z	AB-76	U-55	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	KB-1	US-26	Attach to R1A

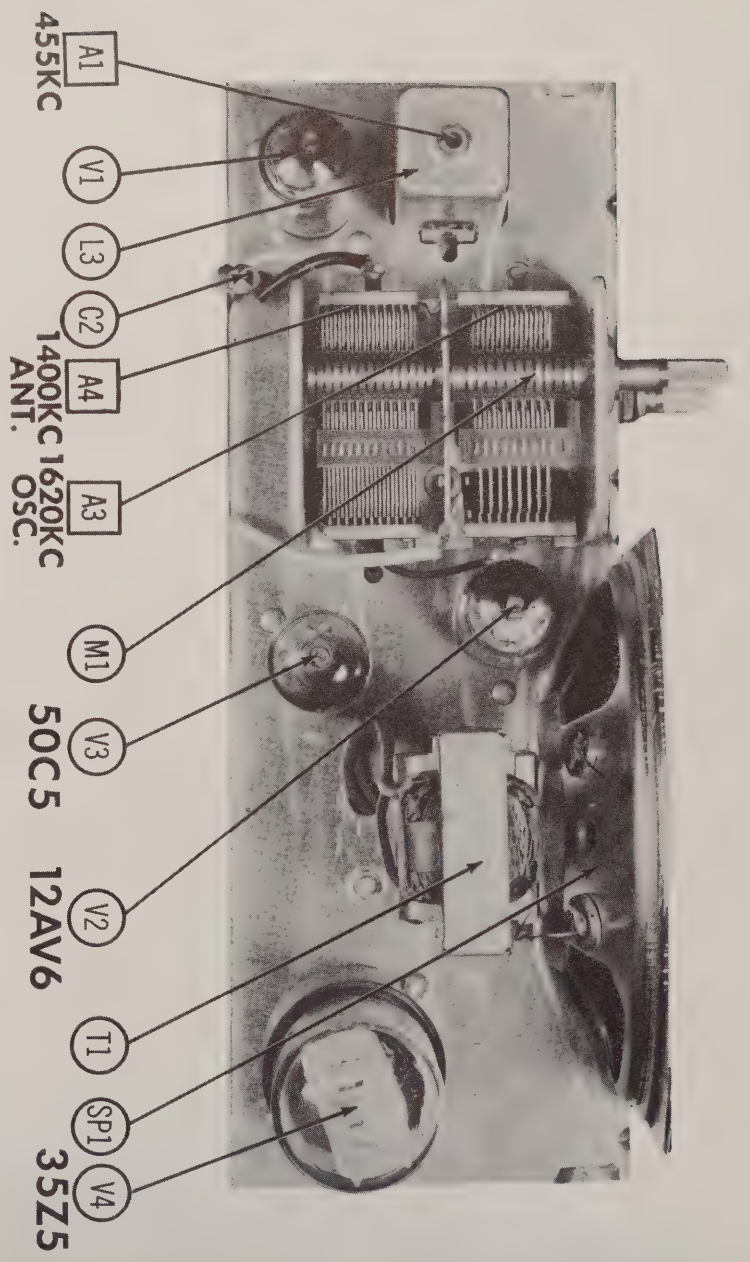
RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	NOTES
R2	2.2Meg	½	N-4277	BTS-2.2Meg	
R3	6.8Meg	½	N-4028	BTS-6.8Meg	
R4A	250KΩ	1½	♦N-8215		Note
B	500KΩ	1¼			

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	NOTES
R5	180Ω	½	N-4067	BTS-180	
R6	68Ω	2	N-6014		
R7	2200Ω	½	N-4896	BTS-2200	
R8	33Ω	½	N-4022		

♦ Items R4A, R4B, C5A, C5B, C5C are combined in one unit.
Note: R4A, R4B may be single units in some models, in which case R4A is 220KΩ (Part #N-4026), R4B is 470KΩ (Part #N-4027)

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	1.9KΩ	2.9Ω	170Ω	.6Ω	Part of spkr.	A-3332 ①	A-3025 ①	RO-2 ①	S-2X ①	① Bend mtg. tabs down, file out slots, mount on orig. mtg. bracket.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	FIRESTONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	2.9Ω	N-7824	ST-113 Mod. P4-X	4A07	

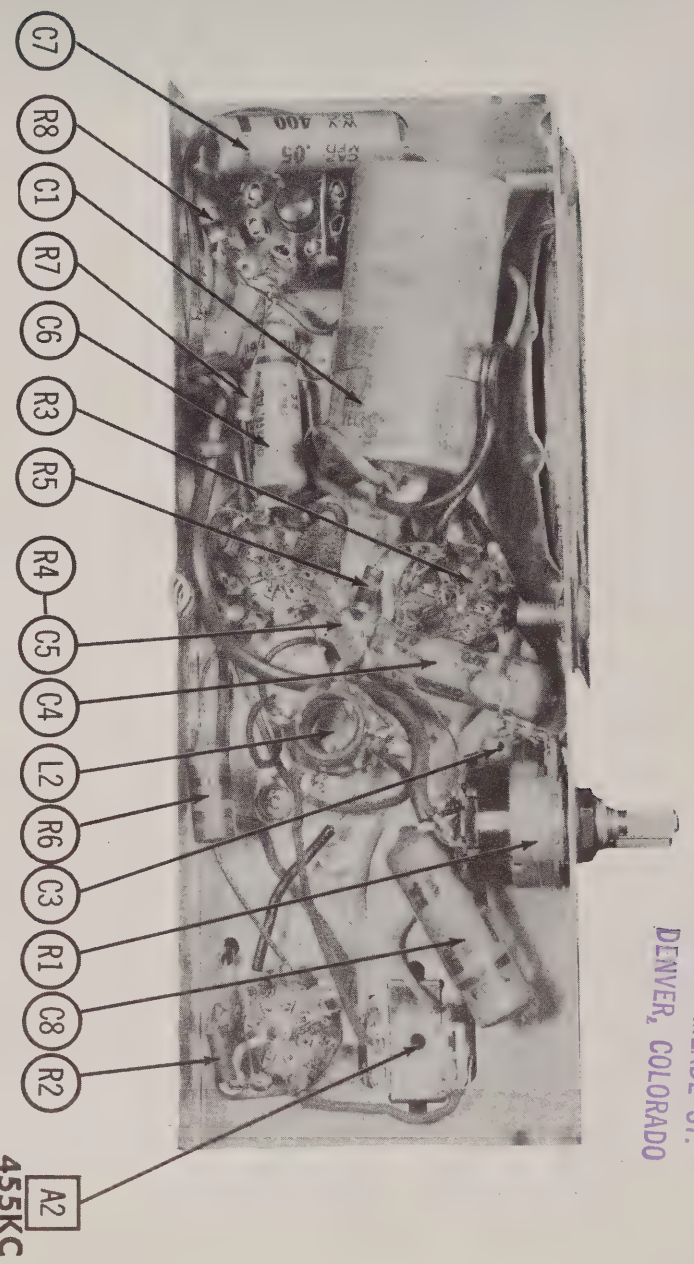
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	FIRESTONE PART No.	MERIT PART No.	
L1	Loop Ant.	2.2Ω		N-8581		
L2	Osc. Coil	1Ω	7.5Ω	N-8552		
L3	1st. IF	30Ω	30Ω	N-7694		

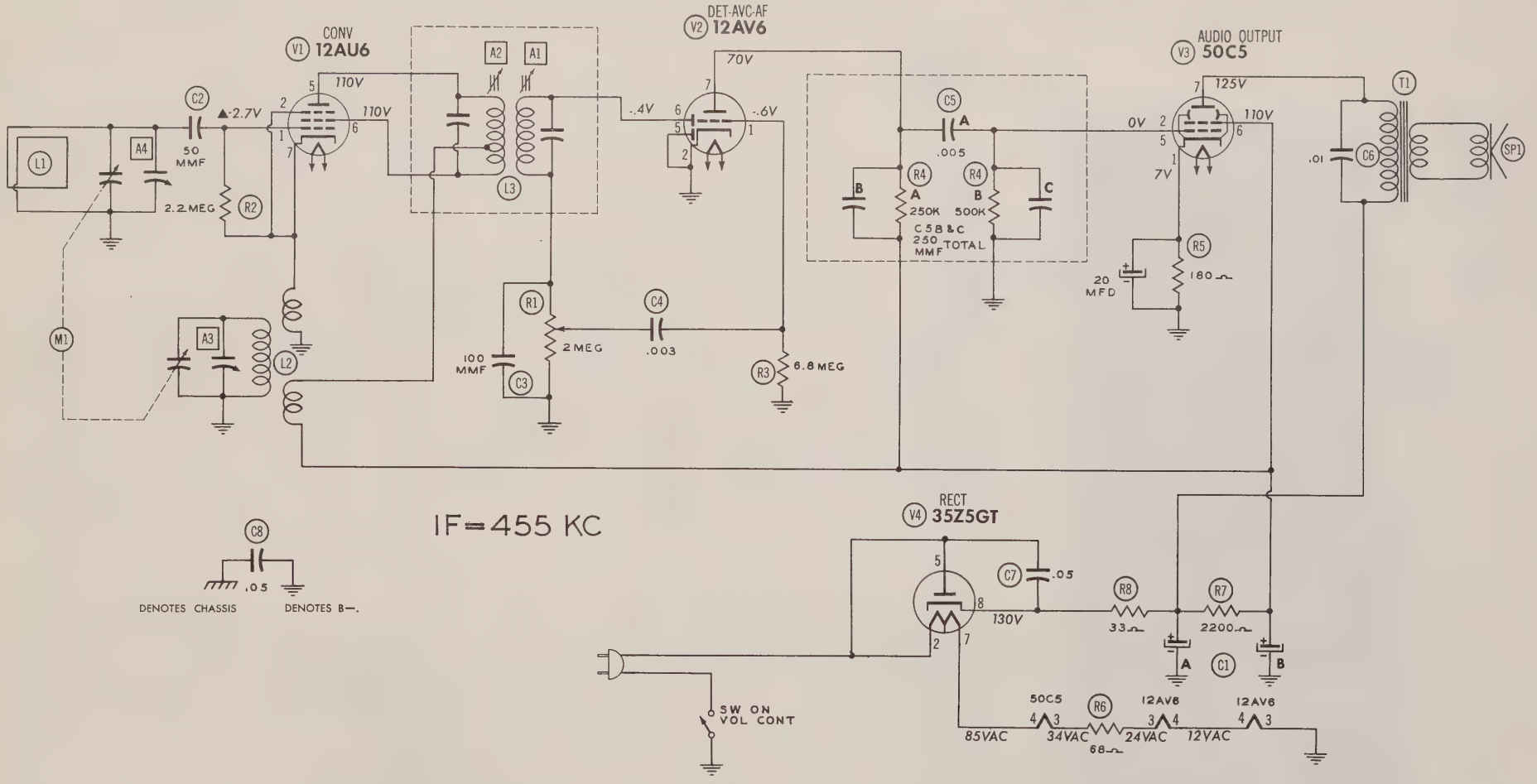
MISCELLANEOUS

ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M1	2 Gang Var. Cap.	N-8508	(23-455MMF, 8-190MMF)
	Cabinet	341	White
	Cabinet	4356	Red
	Cabinet	357	Green
	Cabinet	349	Walnut
	Knob	N-8422	Volume - White
	Knob	N-8619	Volume - Red
	Knob	N-8620	Volume - Green
	Knob	N-8421	Volume - Walnut
	Knob	N-8604	Tuning - White
	Knob	N-8364	Tuning - Walnut

CHASSIS—BOTTOM VIEW



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12AU6	2.2Meg	0Ω	24Ω	12Ω	†2.2KΩ	†2.2KΩ	0Ω	
V 2	12AV6	6.8Meg	0Ω	0Ω	12Ω	0Ω	2Meg	†250KΩ	
V 3	50C5	180Ω	500KΩ	92Ω	142Ω	500KΩ	†2.2KΩ	†203Ω	
V 4	35Z5GT	INF	177Ω	159Ω	INF	177Ω	†33Ω	142Ω	80KΩ

† MEASURED FROM PINS 8 OF V4
▲ TAKEN WITH VACUUM TUBE VOLTEMETER

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HALLICRAFTERS
MODELS 8R40, 8R40C

PROPERTY OF

HALLICRAFTERS
MODELS 8R40, 8R40C

HALLICRAFTERS
MODELS 8R40, 8R40C

TRADE NAME	Hallicrafters Models 8R40, 8R40C
MANUFACTURER	Hallicrafters Co., 4401 W. 5th. Ave., Chicago 24, Ill.
TYPE SET	AC Operated AM Multi-Band Superheterodyne Communications Receiver
TUBES (SEVEN)	Types 6SG7 RF Amp., 6SA7 Conv., 6SK7 1st. IF Amp., 6SK7 2nd. IF Amp., 6H6 Det.-AVC, 6SC7 AF Amp.-BFO, 6K6GT Audio Output.
POWER SUPPLY	110-120 Volts AC RATING 1.2 Amp. @ 117 Volts AC
TUNING RANGE	Band 1 (540-1690KC), Band 2 (1690KC-5.5MC), Band 3 (5.4-15.8MC), Band 4 (15.3-44.5MC)

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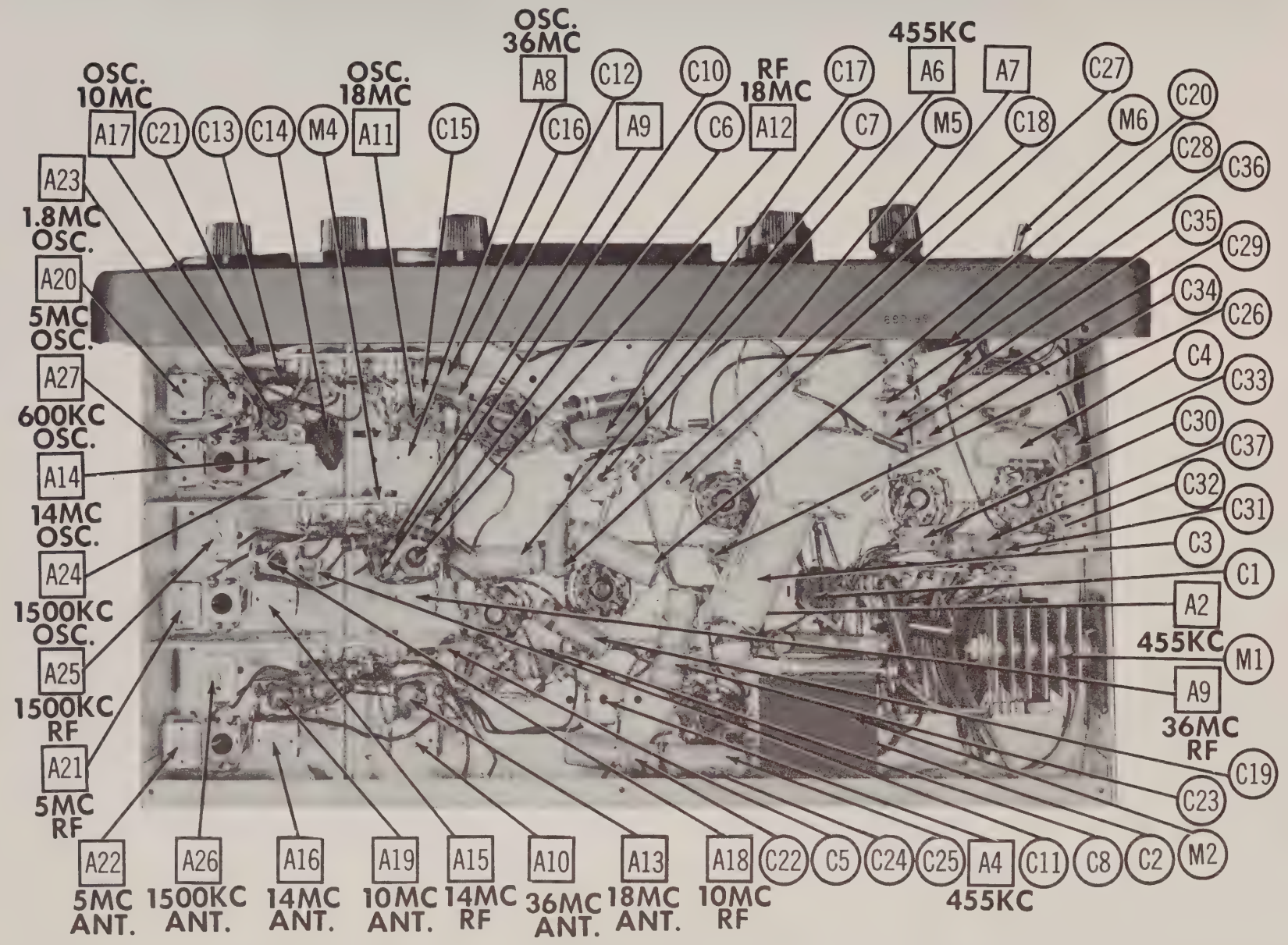
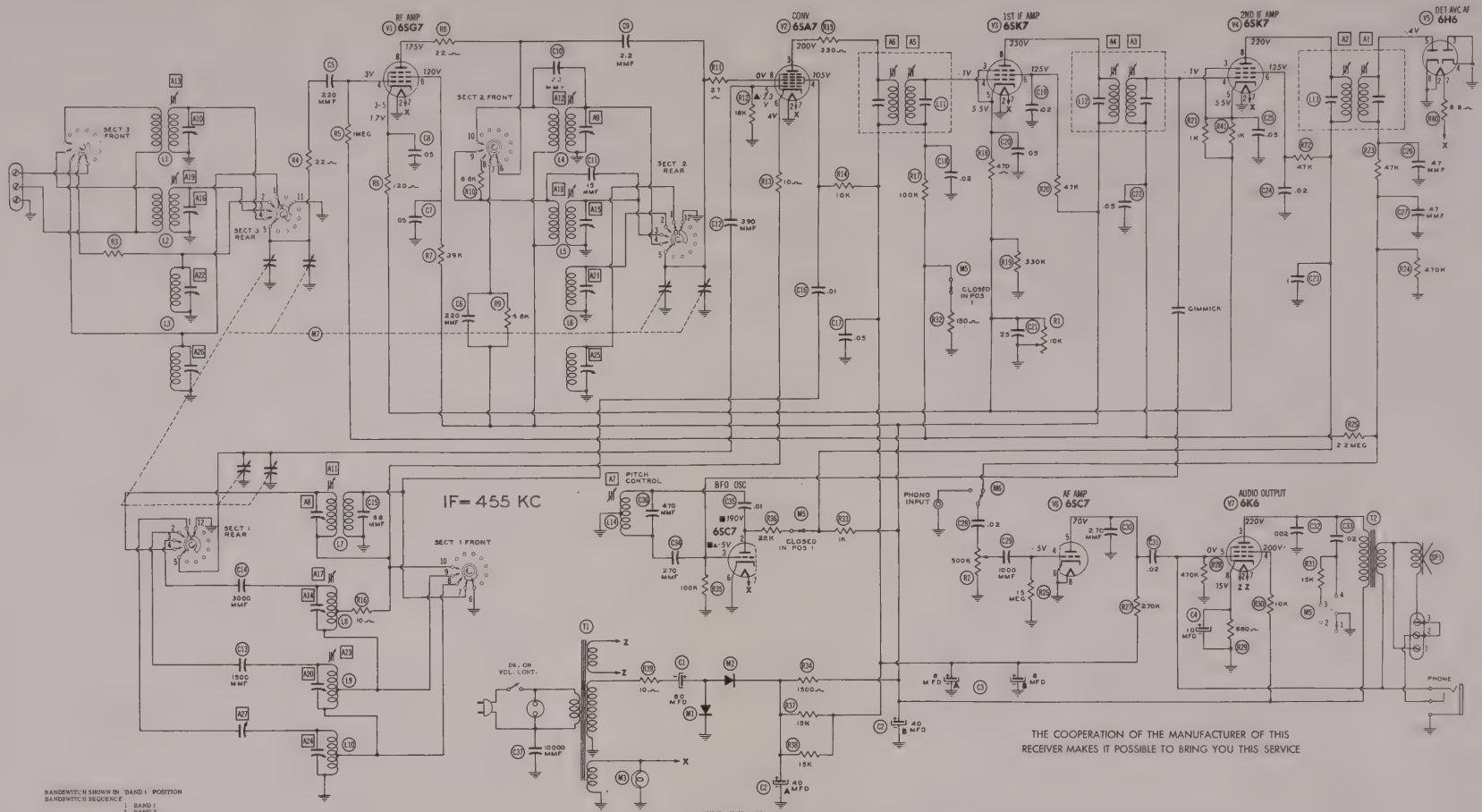

OSC. 10MC
A17
C21
C13
C14
M4
OSC. 18MC
A11
C15
OSC. 36MC
A8
C16
C12
A9
C10
C6
RF 18MC
A12
C17
C7
455KC
A6
M5
A7
C18
C27
M6
C20
C28
C36
C35
C29
C34
C26
C4
C33
C30
C37
C32
C31
C3
C1
A2
455KC
M1
A9
36MC RF
C19
C23
M2
A23
1.8MC OSC.
A20
5MC OSC.
A27
600KC OSC.
A14
14MC OSC.
A24
1500KC OSC.
A25
1500KC RF
A21
5MC RF
A22
5MC ANT.
A26
1500KC ANT.
A16
14MC ANT.
A19
10MC ANT.
A15
14MC RF
A10
36MC ANT.
A13
18MC ANT.
A18
10MC RF
C22
C5
C24
C25
A4
455KC
C11
C8
C2



BANDSWITCH SHOWN IN "BAND 1" POSITION

BANDSWITCH SEQUENCE

1 BAND 1
2 BAND 2
3 BAND 3
4 BAND 4

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SG7	0Ω	0Ω	120Ω	3.7Meg ∞1 Meg	120Ω	↑60KΩ	.1Ω	↑8.3KΩ
V 2	6SA7	0Ω	0Ω	↑7.8KΩ	↑7KΩ 2.5Meg	18KΩ	24Ω	1Ω	32Ω
V 3	6SK7	0Ω	0Ω	470Ω	∞100KΩ 2.7Meg	470Ω	↑48KΩ	.1Ω	↑1.5KΩ
V 4	6SK7	0Ω	0Ω	500Ω	∞1KΩ	500Ω	↑48KΩ	.1Ω	↑2.5KΩ
V 5	6H6	0Ω	0Ω	0Ω	0Ω	515KΩ	515KΩ	3.2Ω	0Ω
V 6	6SC7	0Ω	∞734KΩ	100KΩ	154Meg	↑280KΩ	0Ω	.1Ω	0Ω
V 7	6K6GT	0Ω	0Ω	↑1.8KΩ	↑1KΩ	470KΩ	↑7.5KΩ	.1Ω	680Ω

ALL MEASUREMENTS TAKEN IN BAND #1 (BC) POSITION UNLESS NOTED
↑ MEASURED FROM OUTPUT OF M2
∞ MEASURED WITH "CW"-"TONE" SWITCH IN "CW" POSITION
▲ TAKEN WITH VACUUM TUBE VOLTMETER
SENSITIVITY CONTROL FULLY CLOCKWISE

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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3. Measured values are from socket pin to common negative.
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6. Volume control at maximum, no signal applied for voltage measurements.

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T2
R36
R35
R29
R27
R28
R30
R26
R39
R34
L14
R40
R23
R32
R31
R24
R25
R17
R14
R15
R2
R12
R16
L7
R11
R1
R13
R37
R38
R22
R41
R21
R19
R33
R18
R20
R7
R6
R5
L1
R4
R3
L8
L9
L10
R10
R9
L5
L6
L4
R8
L2
L3

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

With tuning gang fully meshed the dial pointer should be set to coincide with the left hand index marks on the dial. With the bandspread gang fully open the bandspread dial pointer should coincide the with zero on the bandspread dial. Preset the volume, sensitivity and bandspread controls fully clockwise, CW-tone control at high and the phono-radio switch at radio. The RMA dummy antenna consists of a 200MMF capacitor in series with 20 Microheneries inductor , with the inductor shunted by a 400MMF capacitor and a 400Ω carbon resistor in series.

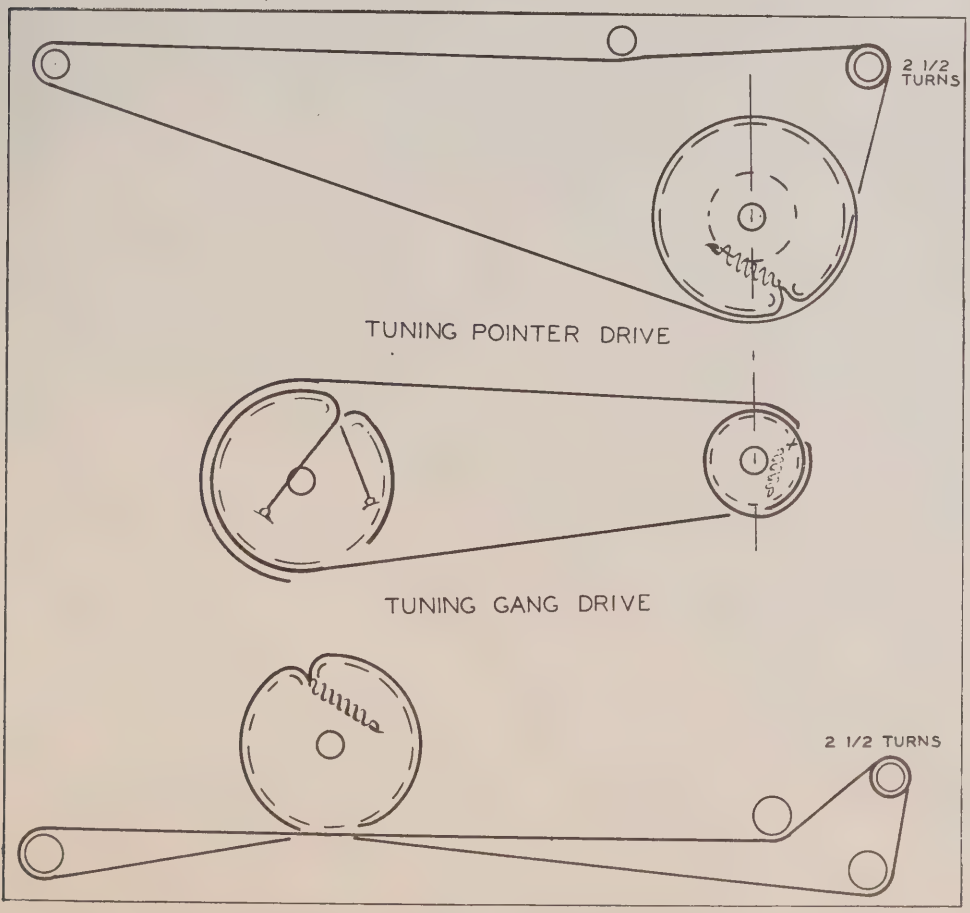
IF ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator plates of center section of tuning gang. Low side to chassis.	455KC (400∿Mod)	1	1000KC	Across voice coil.	A1, A2 A3, A4 A5, A6	Adjust for maximum otuput. Attenuate generator to maintain not more than 50 milliwatts on output meter
2.	"	"	455KC (Unmod)	"	"	"	A7	Set CW-TONE control to CW. Remove pitch control knob and and adjust A7 for zero beat. Replace knob with red line in top center position.

RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
3.	RMA	High side thru RMA dummy to terminal A1 on antenna strip Low side to chassis	36MC (400∿Mod)	4	36MC	Across voice coil.	A8, A9 A10	Adjust for maximum output.
4.	"	"	18MC	"	18MC	"	A11, A12 A13	"
5.	"	"	14MC	3	14MC	"	A14, A15	"
6.	"	"	10MC	"	10MC	"	A17, A18 A19	"
7.	"	"	5MC	2	5MC	"	A20, A21 A22	"
8.	"	"	1.8MC	"	1.8MC	"	A23,	"
9.	"	"	1500KC	1	1500KC	"	A24, A25 A26	"
10.	"	"	600KC	"	600KC	"	A27	"



BANDSPREAD GANG & POINTER DRIVE

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Hallicrafters PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	90X6SG7	6SG7	8BK	
V2	Converter	90X6SA7	6SA7	8R	
V3	1st. IF Amplifier	90X6SK7	6SK7	8N	
V4	2nd. IF Amplifier	90X6SK7	6SK7	8N	
V5	Detector-AVC	90X6H6	6H6	7Q	
V6	AF Amplifier -BFO	90X6SC7	6SC7	8S	
V7	Audio Output	90X6K6GT	6K6GT	7S	

CAPACITORS

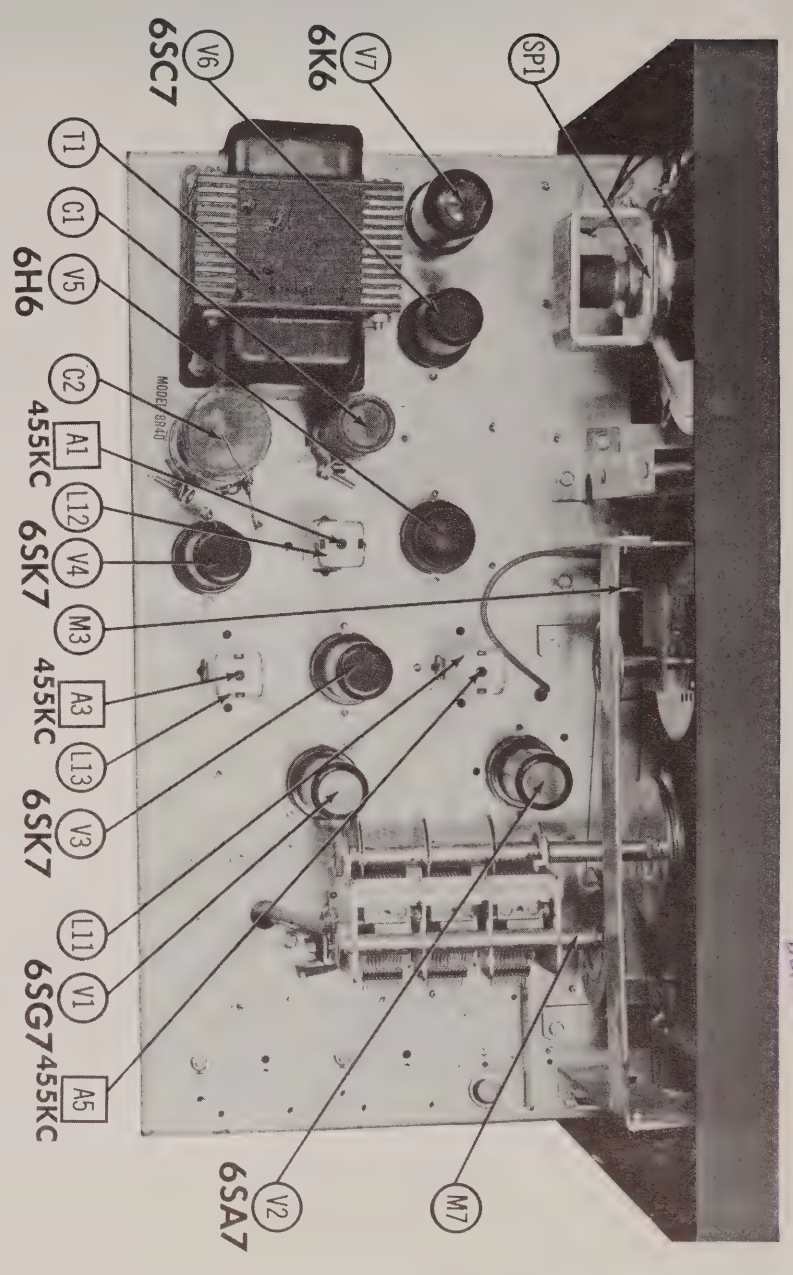
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: Hallicrafters PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1	80	150	45B178	PRS150/40-40		BR8015A		TC492	TVA-1418	
C2A	40	450	45B159	PRS150/40-40		UPT4445		2N537	TVA-2740	
B	40	450								
C3A	8	475	45B169	PRS450/8-8		BRD8D45		TCD71	TVA-2720	
B	8	475								
C4	10	25	45A121	PRS25/10		BR102A		TC22	TVA-1204	
C5	220	500	47X20B221K	1468-00025	D6-221	5W5T25	GP2K-221	MC240	1FM-325	
C6	220	500	47X20B221K	1468-00025	D6-221	5W5T25	GP2K-221	MC240	1FM-325	
C7	.05	600	46AY503J	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C8	.05	600	46AU503J	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C9	2.2		47A160-4		TCZ-2.2		NP0K-2R2		5TCCB-V22	
C10	22		47X21UK220M	SI22	D6-220	5W5Q25	GP1K-220	UC-5422	5GA-Q22	
C11	15		47X21UK150M		TCN-15		N750K-150		5TCU-Q15	
C12	390	500	47X20B391K	1469-0004		5R5T4		MCB243	MS-34	
C13	1500	500	47X30C152K	1464-0015		1R5D15		MCB456		
C14	3000	500	47X30C302K	1464-003		1R5D3		MCB461	MS-23	
C15	68		47X25UK680K				NP0-333-680		5TCC-Q68	
C16	.01	600	46AY103J	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C17	.05	600	46AY503J	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C18	.02	200	46AU203J	P288-02	DF-203	PJ2S2		PT412	2TM-S2	
C19	.02	600	46AY203J	P688-02	DF-203	PTE6S2		PT612	6TM-S2	
C20	.05	600	46AU503J	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C21	.25	200	46AT254J	P488-25		PJ2P25		PT4025	2TM-P25	
C22	.05	600	46AU503J	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C23	.1	600	46AY104J	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C24	.02	600	46AY203J	P688-02	DF-203	PTE6S2		PT612	6TM-S2	
C25	.05	600	46AU503J	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C26	47	500	47X20B470M	1468-00005	D6-470	5W5Q5	GP1K-470	MC225	1FM-45	
C27	47	500	47X20B470M	1468-00005	D6-470	5W5Q5	GP1K-470	MC225	1FM-45	
C28	.02	200	46AU203J	P288-02	DF-203	PJ2S2		PT412	2TM-S2	
C29	1000		47X25B102M	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C30	270	500	47X20B271K	1468-0003	D6-271	5W5T3	GP2K-271	MC241	1FM-33	
C31	.02	600	46AY203J	P688-02	DF-203	PTE6S2		PT612	6TM-S2	
C32	.002	600	46A104	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C33	.02	600	46AY203J	P688-02	DF-203	PTE6S2		PT612	6TM-S2	
C34	270	500	47X20B271K	1469-0003		5R5T3		MCB241	MS-33	
C35	.01	600	46AY103J	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C36	470	500	47X20B471J	1469-0005		5R5T5		MCB245	MS-35	
C37	10000		46AC103J	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: Hallicrafters PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	10KΩ	½	25B590	Q14-116	AG-30-V	B-17	U-19	Sensitivity
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R1A
R2A	500KΩ	½	25B605	Q13-133	AG-60-Z	B-60-S	U-48	Volume
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R2A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R2A

CHASSIS—TOP VIEW



L. F. MCCLANAHAN
3924 NEARL ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA Hallicrafters PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R3	1000Ω	½	23X20X102K	BTS-1000	
R4	22Ω	½	23X20X220M		
R5	1Meg	½	23X20X105M	BTS-1Meg	
R6	120Ω	½	23X20X121K	BTS-120	
R7	39KΩ	1	23X30X393K	BTA-39K	
R8	22Ω	½	23X20X 220M		
R9	6800Ω	1	23X30X682K	BTA-6800	
R10	6800Ω	1	23X30X682K	BTA-6800	
R11	27Ω	½	23X10X270K		
R12	18KΩ	½	23X20X183K	BTS-18K	
R13	10Ω	½	23X10X100M		
R14	10KΩ	2	23X40X103K	BTB-10K	
R15	330Ω	½	23X20X331K		
R16	10Ω	½	23X10X100M		
R17	100KΩ	½	23X20X104M	BTS-100K	
R18	470Ω	½	23X20X471K	BTS-470	
R19	330KΩ	½	23X20X334K	BTS-330K	
R20	47KΩ	1	23X30X473K	BTA-47K	
R21	1000Ω	½	23X20X102K	BTS-1000	Note 1
R22	47KΩ	1	23X30X473K	BTA-47K	
R23	47KΩ	½	23X20X473M	BTS-47K	
R24	470KΩ	½	23X20X474M	BTS-470K	
R25	2.2Meg	½	23X20X225M	BTS-2.2Meg	
R26	15Meg	½	23X10X156M	BTS-15Meg	
R27	270KΩ	½	23X20X274K	BTS-270K	
R28	470KΩ	½	23X20X474M	BTS-470K	
R29	680Ω	1	23X30X681K	BTA-680	
R30	10KΩ	½	23X20X103M	BTS-10K	
R31	15KΩ	1	23X30X153M	BTA-15K	
R32	150Ω	½	23X20X151M	BTS-150	
R33	1000Ω	½	23X20X102K	BTS-1000	
R34	1500Ω	10	24BG152E	1 3/4A-1500	
R35	100KΩ	½	23X20X104M	BTS-100K	
R36	22KΩ	½	23X20X223M	BTS-22K	
R37	15KΩ	2	23X45K153K	BTB-15K	
R38	15KΩ	2	23X45K153K	BTB-15K	
R39	10Ω	2	23X40X100K		
R40	6.8Ω	1	23X30X068K		
R41	1000Ω	½	23X20X102	BTS-1000	Note 2

Note 1. Some models use a 500Ω resistor in this application.
Note 2. Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA Hallicrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ 1.2A	115VAC .725ADC	6.3VAC @ .9A	6.3VAC @ 1.2A	52C212				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA Hallicrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	6.3KΩ	3.2Ω	390Ω	.4Ω	55B093	A-3878	A-2931	RO-13	S-7X	

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA Hallicrafters PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	5"	PM	3.2Ω	85B050* 85C111 ①	ST-105 Mod. P5-X	5A1	① 8" PM speaker used in Model 8R40C

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA Hallicrafters PART No.	MERIT PART No.	NOTES
L1	SW Ant. Coil	.2Ω	0Ω	51B783		Band 4 (Includes Trimmer)
L2	SW Ant. Coil	.4Ω	0Ω	51B782		Band 3 (Includes Trimmer)
L3A	BC Ant.Coil	5.5Ω		51B1241		Band 1
B	SW Ant.Coil	1.6Ω		51B1241		Band 2 (Includes Trimmer)
L4	SW RF Coil	16.Ω	0Ω	51B787		Band 4 (Includes Trimmer)
L5	SW RF Coil	7.5Ω	0Ω	51B786		Band 3 (Includes Trimmer)
L6A	SW RF Coil	1.8Ω		51B1240		Band 2 (Includes Trimmer)
B	BC RF Coil	5.5Ω		51B1240		Band 1
L7	SW Osc. Coil	.4Ω	0Ω	51B791		Band 4 (Includes Trimmer)
L8	SW Osc. Coil	.1Ω		51B913		Band #3 (Includes Trimmer)
L9	SW Osc. Coil	1Ω		51B789		Band 2 (Includes Trimmer)
L10	BC Osc. Coil	3Ω		51B912		Band 1 (Includes Padder)
L11	1st. IF Trans.	8.5Ω	8.5Ω	50C243	BC-352	
L12	2nd IF Trans.	8.5Ω	8.5Ω	50C243	BC-352	
L13	3rd IF Trans.	15Ω	16Ω	50C242	BC-353	
L14	Beat Freq.Coil	16Ω		54B044		Tapped @ 5.5Ω

* Alternate part #48C291

PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA Hallicrafters PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	NOTES
M1	.200A	27A155	NH5	6Q4	1090	6S300	
M2	.200A	27A155	NH5	6Q4	1090	6S300	

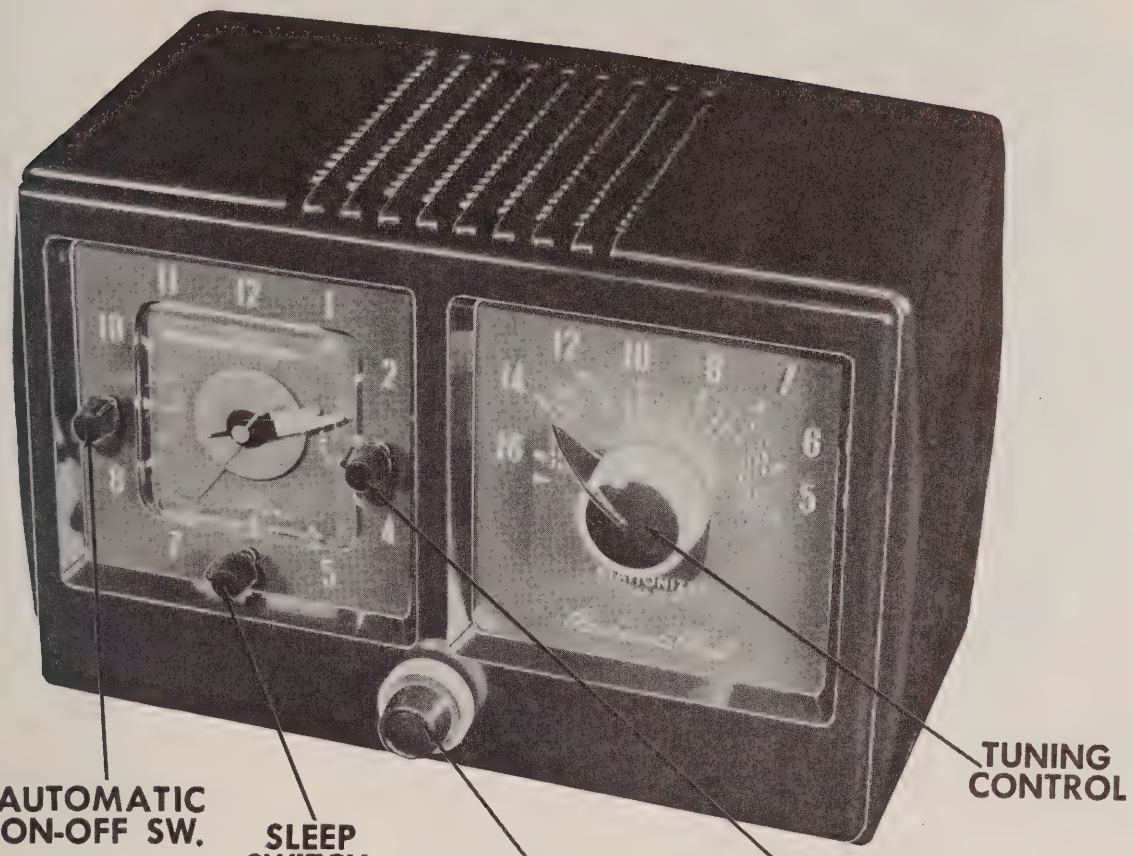
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA Hallicrafters PART No.		NOTES
M3	Bayonet	6-8	.25	Blue	39A003		Type #44

MISCELLANEOUS

ITEM No.	PART NAME	Hallicrafters PART No.	NOTES
M4	Switch		Band Selector
M5	Switch	60B469	CW-Tone
M6	Switch	60A139	Radio-Phono
M7A	3 Gang Var. Cap.	48C281	(17-435MMF each section)
B	3 Gang Var. Cap.	48C291	Alternate
A24	Trimmer	44A191	BC Osc. Adj. (1.5-15MMF)
A25	Trimmer	44A191	BC RF Adj. (1.5-15MMF)
A26	Trimmer	44A191	BC Ant. Adj. (1.5-15MMF)
	Cabinet	66D359	Model 8R40 (Does Not include front panel or top cover)
	Cabinet	78F824	Model 8R40C
	Dial	83E407	
	Pointer	82A199	Tuning
	Pointer	82A209	Bandspread
	Knob	15A468	Sensitivity, Band Selector, Volume, CW-Tone
	Knob	15B470	Pitch
	Knob	15A048	Bandspread, Tuning

PACKARD-BELL
MODEL 621



PACKARD-BELL
MODEL 621

TRADE NAME	Packard-Bell Model 621
MANUFACTURER	Packard-Bell Co.-Service Div., 11th. & Hope Sts., Los Angeles 15, Calif.
TYPE SET	AC Operated AM Superheterodyne Receiver with Electric Clock
TUBES (Six)	Types 6BJ6 RF Amp., 12BE6 Conv., 6BJ6 IF Amp., 12AV6 Det.-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .250 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to B-.	455 KC (400∿ Mod.)	540 KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	"	"	"	A5	Adjust for MINIMUM output.
3.	"	"	1620 KC	Tuning gang fully open	"	A6	Adjust for maximum output.
4.		Loop	1500 KC	Tune to 1500 KC signal	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		Packard-Bell PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BJ6	6BJ6	7CM	
V2	Converter	12BE6	12BE6	7CH	
V3	IF Amplifier	6BJ6	6BJ6	7CM	
V4	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
V5	Audio Output	50C5	50C5	7CV	
V6	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Packard-Bell PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	30	150	24034	PRS150/40-20-20		EZ42215C		3N527	TVA-3415	
B	20	150		PRS25/25				TC47	TVA-1412	
C	20	150								
D	20	25								
C2	220		23915	SI220	D6-221	5W5T25	GP2K-221	UC-5322	5GA-T22	
C3	220		23915	SI220	D6-221	5W5T25	GP2K-221	UC-5322	5GA-T22	
C4	.05	200	23017	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C5	220		23915	SI220	D6-221	5W5T25	GP2K-221	UC-5322	5GA-T22	
C6	5000		23931	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C7	470		23916	SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C8	10000		23939	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C9	5000		23931	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C10	.005	600	23004	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C11	.05	200	23017	P288-05		PJ2S5		PT415	2TM-S5	
C12	.1	200	23019	P288-1		PJ2P1		PT401	2TM-P1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Packard-Bell PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	25026	*			UF55A	Tone-Panel
B	500KΩ	½		QJ-343R *			UR55A	Volume-Rear

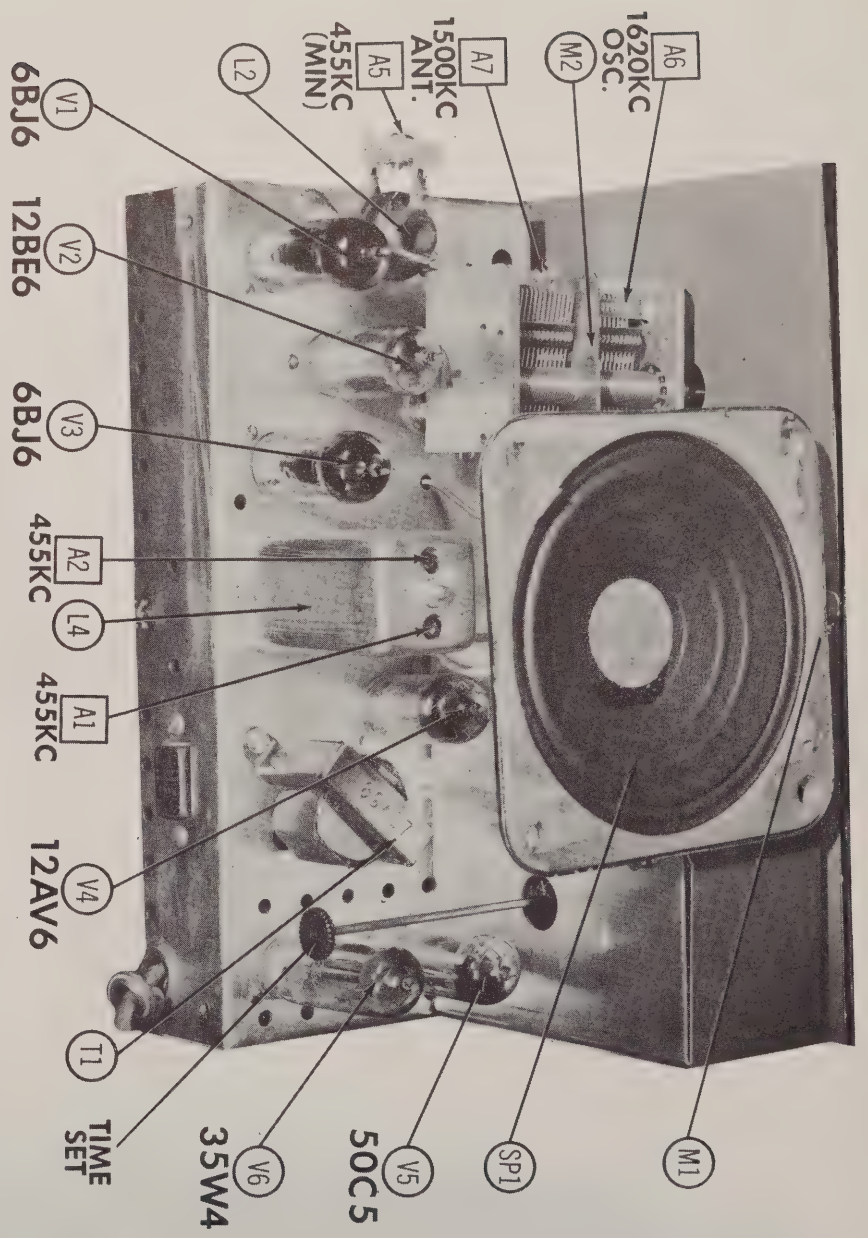
*CONCENTRIKIT EQUIVALENT- KIT K-2, BASE ELEMENTS & SHAFTS B13-133 and P1-109 (Panel)
B13-133 & R1-122 (Rear)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Packard-Bell PART No.	IRC PART No.	
R2	120Ω	½	73014	BTS-120	
R3	4700Ω	½	73033	BTS-4700	
R4	1Meg	½	73161	BTS-1Meg	
R5	22KΩ	½	73041	BTS-22K	
R6	2.2Meg	½	73165	BTS-2.2Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	PART No.	IRC PART No.	
R7	220Ω	½	73017	BTS-220	
R8	4.7Meg	½	73169	BTS-4.7Meg	
R9	470KΩ	½	73157	BTS-470K	
R10	150Ω	½	73015	BTS-150	
R11	180Ω	1	73216	BTA-180	
R12	1000Ω	1	73225	BTA-1000	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		Packard-Bell PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	2KΩ	3.3Ω	135Ω	.7Ω	89417	A-3332	A-2928 ①	RO-2 ①	S-2X ①	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Packard-Bell PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.3Ω	83008B	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Packard-Bell PART No.	MERIT PART No.	
L1	Loop Ant.	10Ω		29343A		Includes Trimmer
L2	IF Trap	33Ω		29005		
L3	Osc. Coil	.8Ω	5.5Ω	29220		
L4	Input IF	12Ω	12Ω	29045		
L5	Output IF	17Ω	17Ω	29046	BC-368	

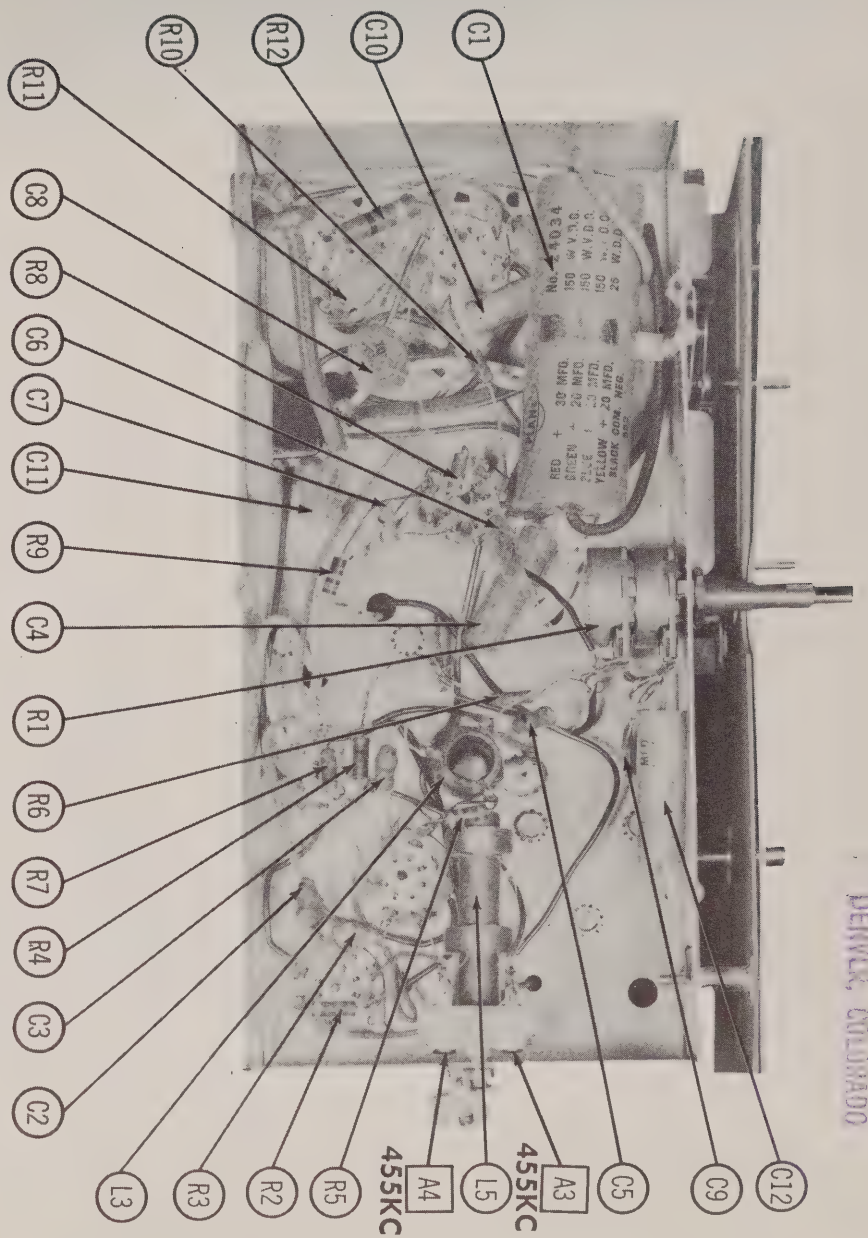
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					Packard-Bell PART No.		
M1	Bayonet	6-8	.15	Brown	54002		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	Packard-Bell PART No.	NOTES
M2	2 Gang Var. Cap.	23528	37-488MMF, 20-192MMF
	Dial	38128	
	Knobs	58038-1	Clock (Specify color)
	Knob	52079	Tuning (Specify color)
	Knob	52074	Volume (Specify color)
	Knob	52073	Tone (Specify Color)
	Cabinet	521-621	Specify Color
	Clock Assy.	58038	

CHASSIS—BOTTOM VIEW



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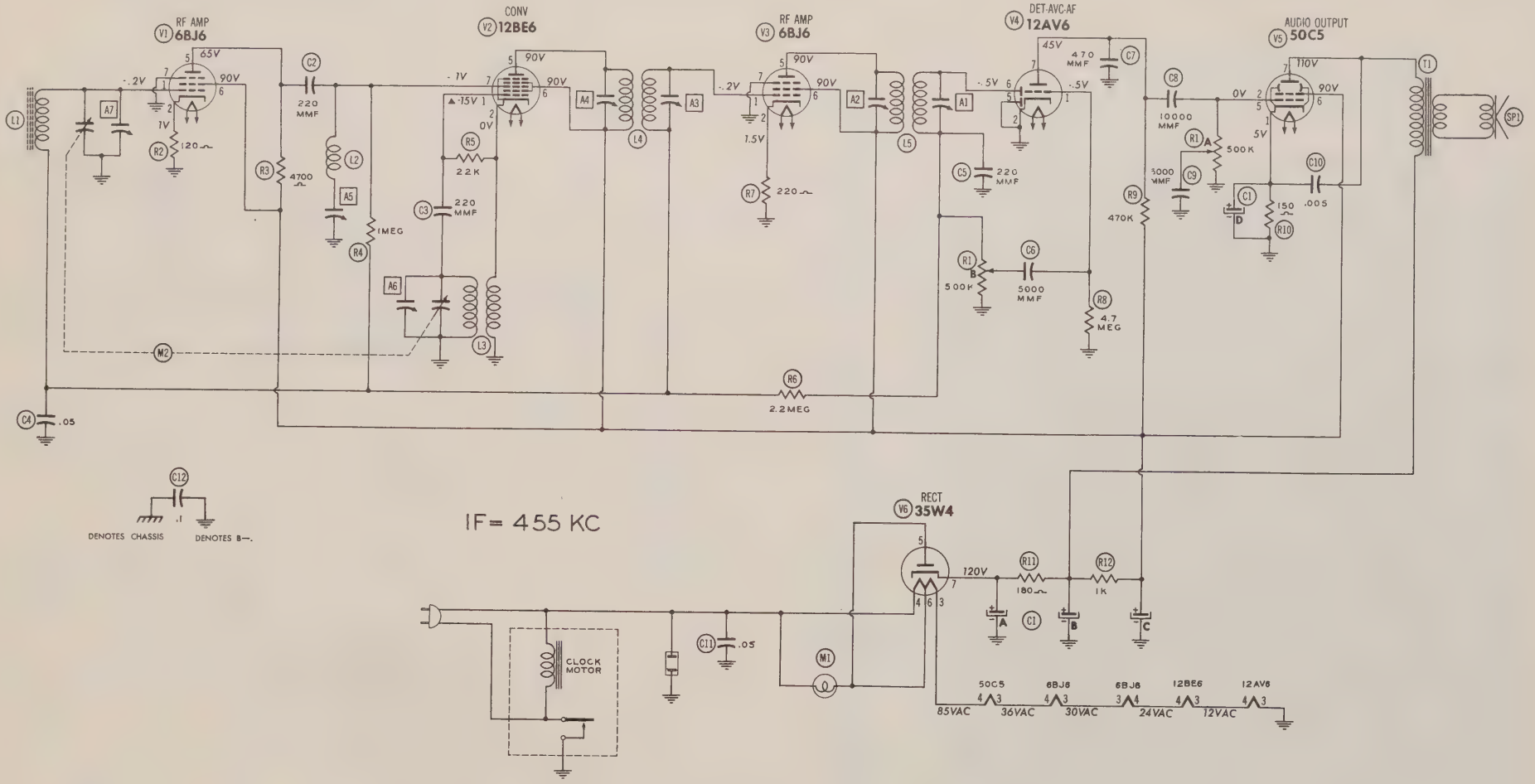
PACKARD-BELL MODEL 621

SET 181 FOLDER 8

PACKARD-BELL MODEL 621



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BJ6	2.7Meg	120Ω	30Ω	24Ω	†5.9KΩ	†1.2KΩ	0Ω
V 2	12BE6	22KΩ	.8Ω	12Ω	24Ω	†1.2KΩ	†1.2KΩ	3.7Meg
V 3	6BJ6	2.7Meg	220Ω	30Ω	36Ω	†1.2KΩ	†1.2KΩ	0Ω
V 4	12AV6	4.7Meg	0Ω	0Ω	12Ω	0Ω	500KΩ	†470KΩ
V 5	50C5	150Ω	500KΩ	36Ω	86Ω	500KΩ	†1.2KΩ	†315Ω
V 6	35W4	†180Ω	INF	86Ω	121Ω	105Ω	105Ω	30KΩ

† MEASURED FROM PIN 7 OF V6.
▲ TAKEN WITH VACUUM TUBE VOLTMETER

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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*TRADE MARK

PHILCO MODELS 52-T1882 (Code 121), 52-T1883 (Code 121), 52-T2145X (Code 125), 52-T2182 (Code 121), 52-T2245 (Code 121), 52-T2253 (Code 121), 52-T2282 (Code 121), 52-T2283 (Code 121) (Chassis D-4, 44)

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MODEL 52-T2245

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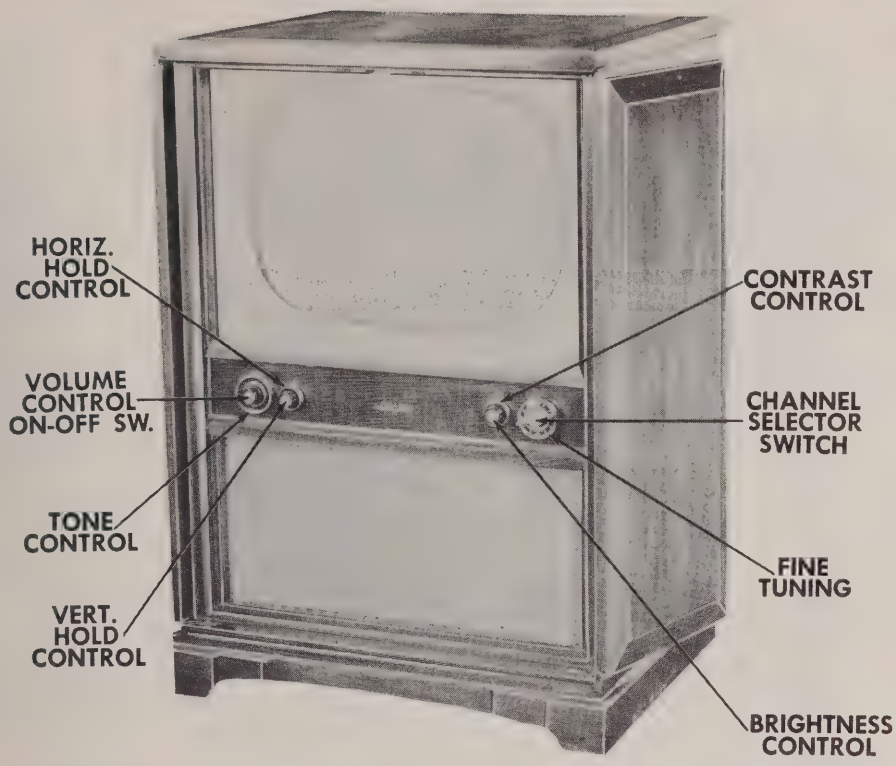

PHILCO 52-T2245

TRADE NAME	Philco Models 52-T2145X, Code 125, 52-T2245, 52-T2253, Code 121, (Def Ch D4), (RF-IF Ch. 44) also TV chassis of TV-Radio-Pnono combination models 52-T1882, 52-T1883, 52-T2182, 52-T2282, 52-T2283-Code 121.
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE RECEIVER	Television Receiver
TUBES	Twenty-one
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 1.5Amp @ 117 Volts AC
TUNING RANGE	— CHANNELS 2 thru 13

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FOR SERVICE INFORMATION ON RECORD CHANGER MODEL M-22, REFER TO PHOTOFACT SET 140, FOLDER 6, OR RECORD CHANGER MANUAL CM-4

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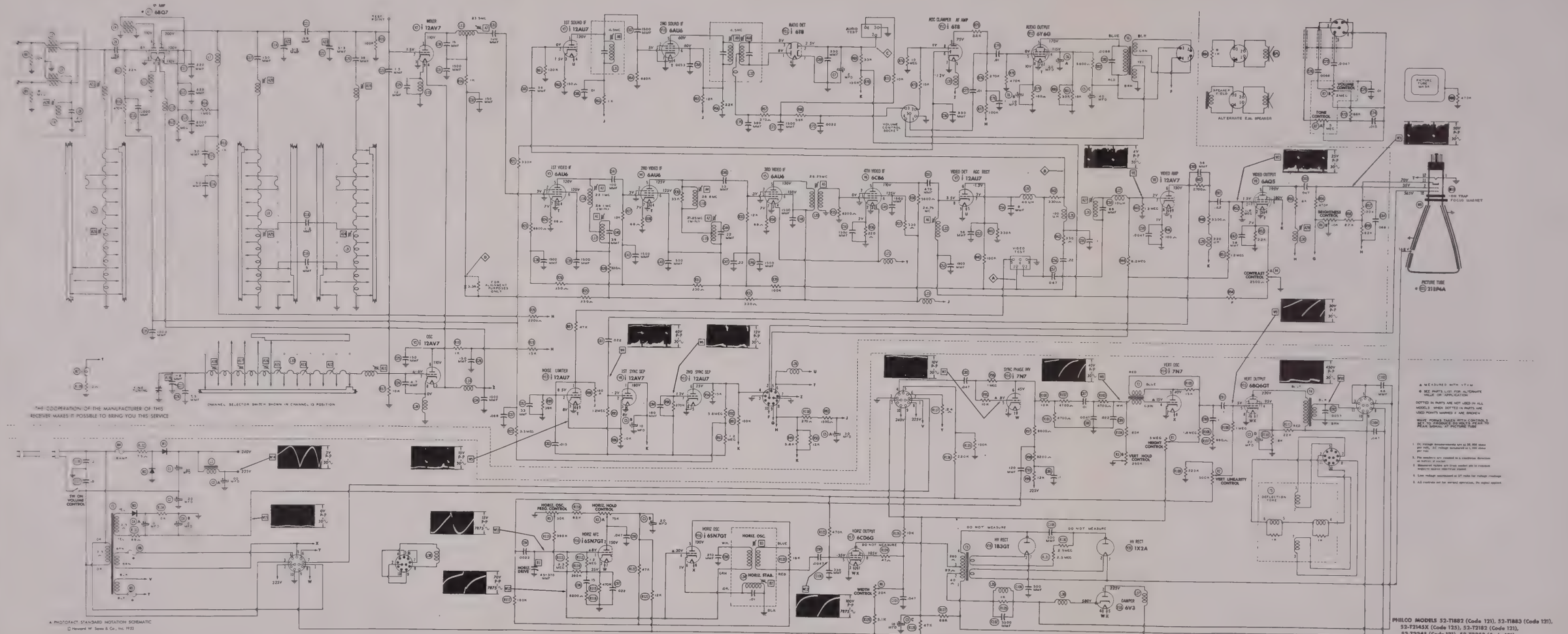
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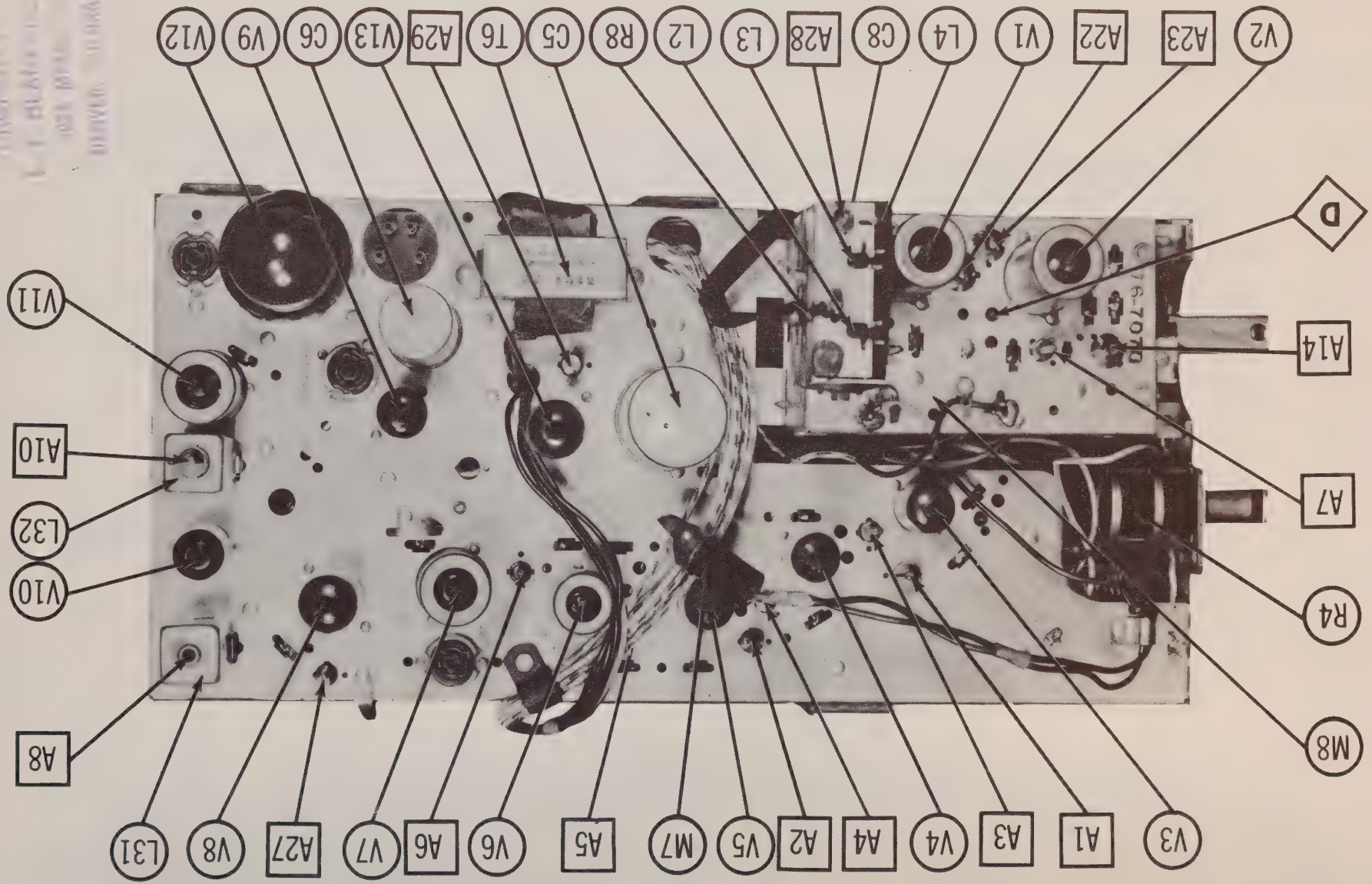
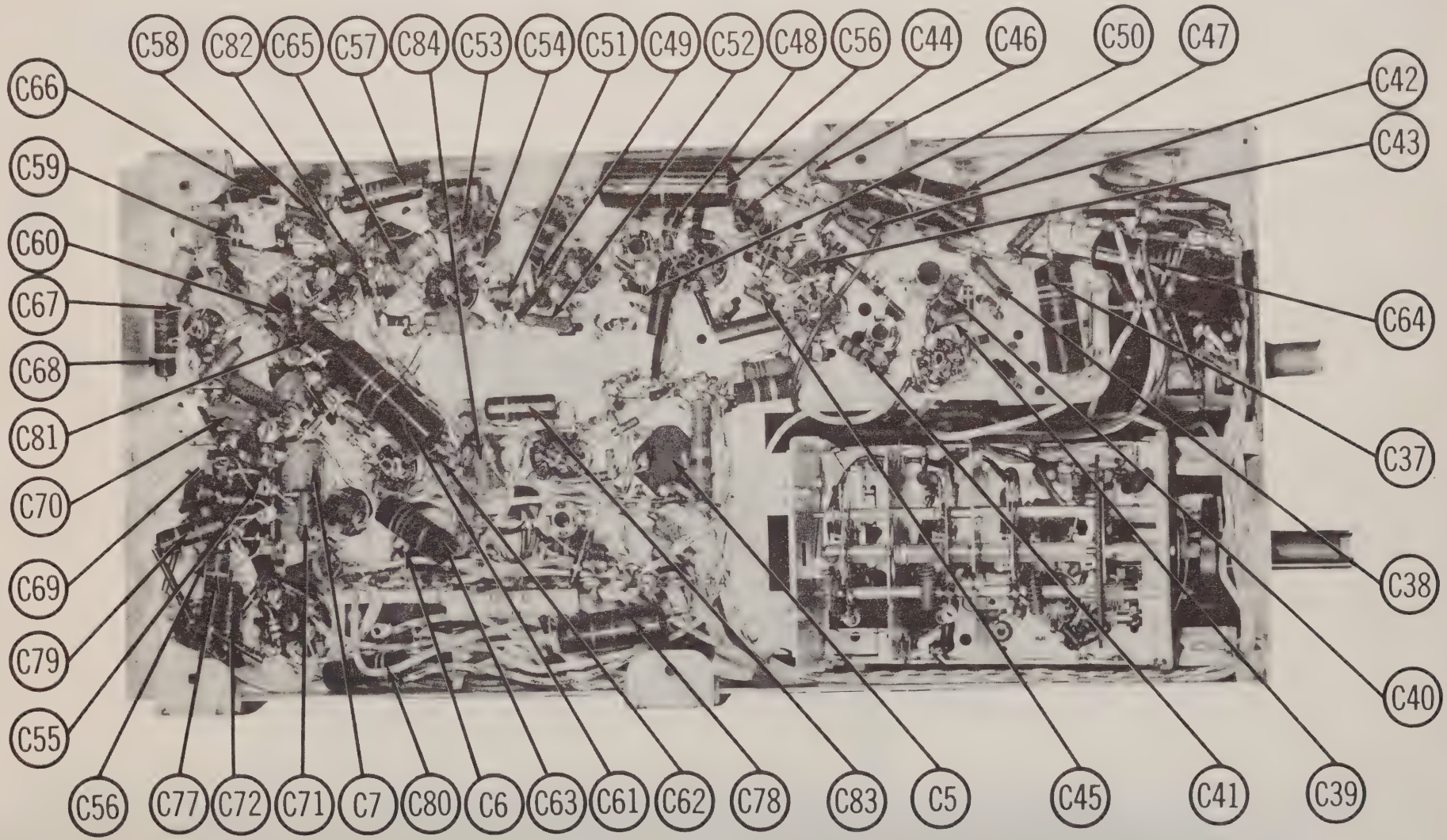
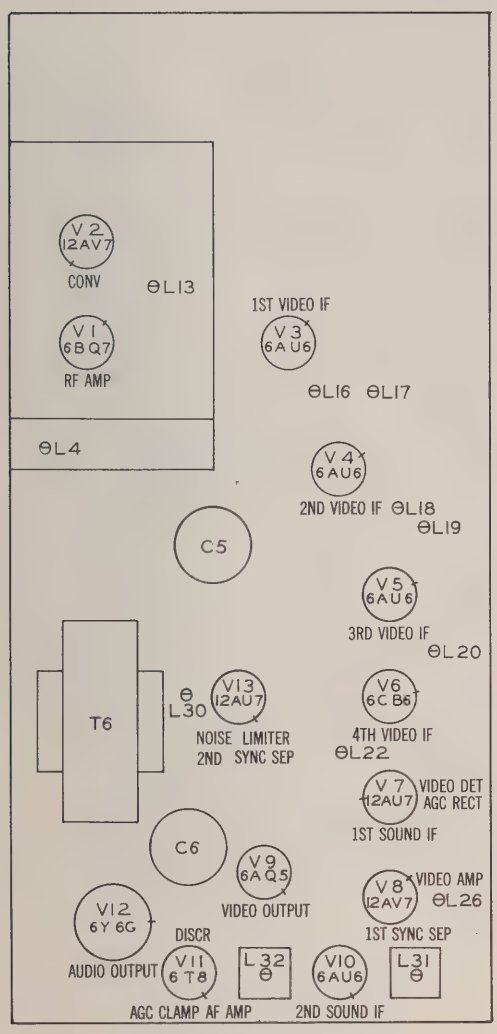
RF-IF CHASSIS-TOP VIEW

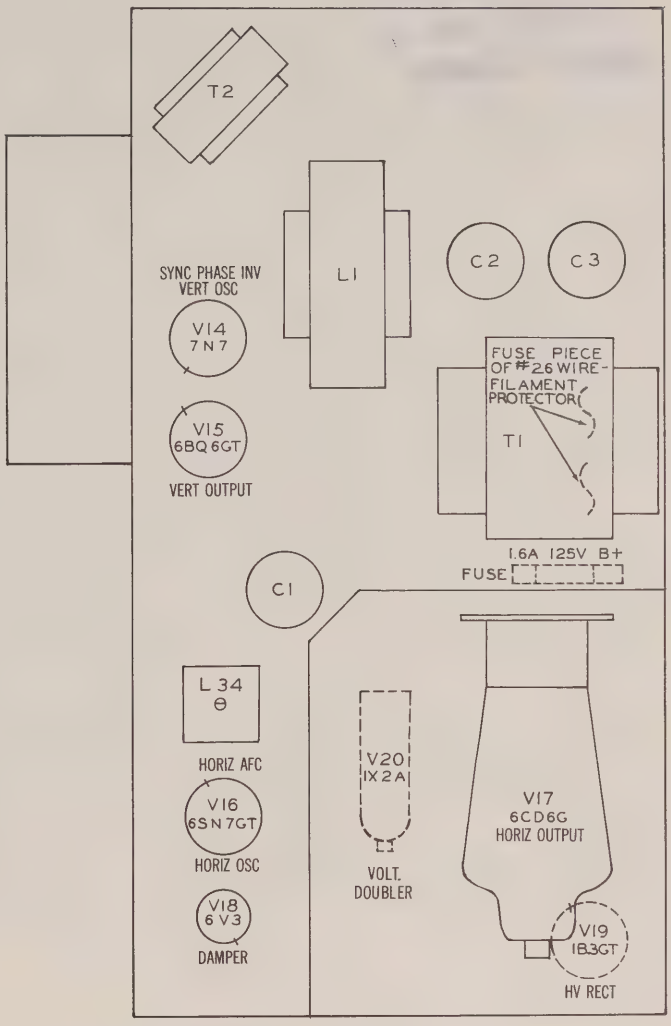




RF-IF CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION

TUBE PLACEMENT CHART





TOP VIEWS

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are mose likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-Selenium Rectifiers (M1, M2) Fuse (M4)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster-V2, V3, V4, V5, V6, V7
No pic, no sound, has snow-V1, V2, V3
No pic, has shound, has raster-V8, V9, V21
Has pic, no sound-V7, V10, V11, V12
Overloaded picture-V7

SYNC FAILURE
No vert. sync-V14
No horiz. sync.-V14, V16
No vert. or horiz. sync.-V8, V13

SWEEP FAILURE
No raster, has sound-V16, V17, V18, V19, V20, V21
No vertical deflection-V15
Poor vert. linearity or foldover-V14, V15
Poor horiz. linearity or foldover-V16, V17, V18
Narrow picture-V16, V17, V18, V19, V20, M1, M2
Vert off freq.-V14
Horiz. off freq. -V14, V16

PHILCO MODELS 52-T1882 (Code 121), 52-T1883 (Code 121), 52-T2145X (Code 125), 52-T2182 (Code 121), 52-T2245 (Code 121), 52-T2253 (Code 121), 52-T2282 (Code 121), 52-T2283 (Code 121) (Chassis D-4, 44)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt battery to the junction of R39 and R40. Connect the positive lead to chassis. Preset A1 and A2 fully counter clockwise. Preset A3 and A4 to the center of their ranges.
Set the contrast control fully counter clockwise and the brightness control to give a dim raster.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.001MFD	High side to pin 2 (grid) of 12AZ7 (V2). Low side to chassis.	28.1MC (Unmod.)	Any not used locally.	DC probe to point (A). Common to point (B).	A1	Use zero bias. Adjust for MINIMUM deflection.
2.	"	"	21.85MC	"	"	A2	"
3.	"	"	23.1MC	"	"	A3	Use 3 volt bias. Adjust for maximum deflection.
4.	"	"	26.6MC	"	"	A4	"
5.	"	"	26.25MC	"	"	A5	"
6.	"	"	24.75MC	"	"	A6	"
7.	"	"	23.5MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.001MFD	High side to pin 2 (grid) of 12AZ7 (V2). Low side to chassis.	24MC (10MC Swp)	22.5MC 24.5MC 26.6MC	Any not used locally	Vert. amp. to point (A). Low side to chassis.		Check for response curve similar to fig. 1. If necessary make minor adjustments of A3 thru A7 for desired response.

SOUND IF ALIGNMENT

Remove the first video IF tube from its socket. Adjust the volume control for a moderate output.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	2200Ω Carbon Resistors	High side thru 2200Ω to point (A). Low side chassis.	4.5MC (Unmod.)	Any not used locally	DC probe to point (C) Common to chassis.	A8, A9	Adjust for maximum deflection.
10.	"	"	4.5MC (400%AM)	"	Not used	A10	Adjust for MINIMUM speaker output.

OSCILLATOR ALIGNMENT

Preset the fine tuning control to the center of its range (the stop on the cam centered on Channel 6 adjustment screw).
Starting with Channel 13, every other coil is tunable, therefore it is possible to set either of two adjacent coils on exact frequency, i.e., 13 or 12, 11 or 10, etc.
Connect a 3300 ohm resistor in series with the red lead from the tuner. The junction of the resistor and the red lead is alignment point (D).

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	Not used	237.85MC (Unmod.)	13	Vert. amp. to point (D). Low side to chassis.	A11	Adjust for zero beat indication on the scope.
				225.85MC	11		A12	
				213.85MC	9		A13	
12.	"	"	"	207.85MC	8	"	A14	Check channel 8 oscillator frequency. If too high, adjust A14 clockwise- if too low adjust counter clockwise.
13.	"	"	"	201.85MC	7	"	A15	Adjust for zero beat indication on scope.
				109.85MC	6		A16	
				93.85MC	4		A17	
				81.85MC	2		A18	

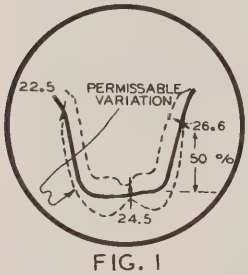


FIG. 1

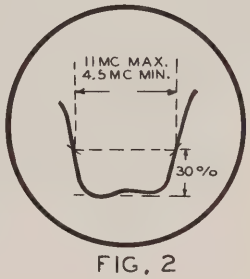


FIG. 2

ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT

Disconnect the white lead from the tuner and connect to the negative lead of a 1.5 volt battery.
Connect the positive lead to chassis.
Connect a 330 ohm resistor from the green lead to chassis.
Leave the 3300 ohm resistor connected as under Oscillator alignment.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	213MC	13	Vert. amp. to point (D). Low side to chassis.	A19, A20 A21	Detune A19 until a single peak occurs. Adjust A20 to place marker at center of peak. Adjust A21 for maximum height and symmetry of peak.
15.	"	"	"	211.25MC 213MC 215.75MC	13	"	A19, A20	Readjust for a symmetrical response curve similar to fig. 2.
16.	"	"	177MC (10MC Swp)	177MC	7	"	A22, A23	Examine response curve for center frequency and tilt. If the response is tilted adjust A22 and A23 until response is a mirror image of the original. This is necessary to compensate for effects of channel 13 adjustments. See figs 3A and 3B for example of compensated response curve. Repeat steps 14, 15 and 16 until proper response is obtained on both channels 7 and 13.
17.	"	"	85MC	85MC	6	"	A24, A25 A26	Detune A24 until a single peak appears (Caution: do not turn A24 excessively or it will fall out of the coil.) Adjust A25 so 85 MC occurs at center of single peak. Adjust A26 for maximum amplitude and symmetry of peak.
18.	"	"	"	83.25MC 85MC 87.75MC	"	"	A24, A25	Readjust A24 and A25 for response similar to fig. 2.

4.5MC TRAP ADJUSTMENT

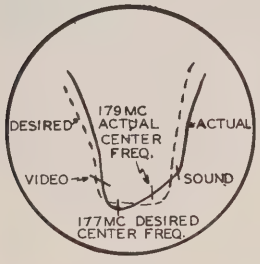
After alignment is complete turn set on and tune in a TV station. Adjust the 4.5MC trap, A27 for minimum 4.5MC beat interference in picture.

FM TRAP ADJUSTMENT

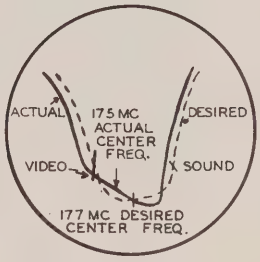
The FM trap, A28, is factory adjusted to eliminate interference at 100MC. If interference is experienced from an FM station at some other frequency it can be reduced by tuning in the TV station affected and adjusting A28 for minimum interference.

VIDEO OUTPUT PEAKING COIL ADJUSTMENT

The video output peaking coil is adjusted at the factory for proper transient response of the video amplifiers. If this coil is replaced in servicing, adjustment will be necessary. Also, on some stations where excessive smear is present, adjustment may improve the picture quality on that station at the possible sacrifice of quality on others. Before adjusting make certain that tuner and IF alignments are correct, then tune in the station and adjust A29 so that there are no trailing whites or smear in the picture. Check other stations to see that quality has not been impaired.



ORIGINAL
FIG. 3A

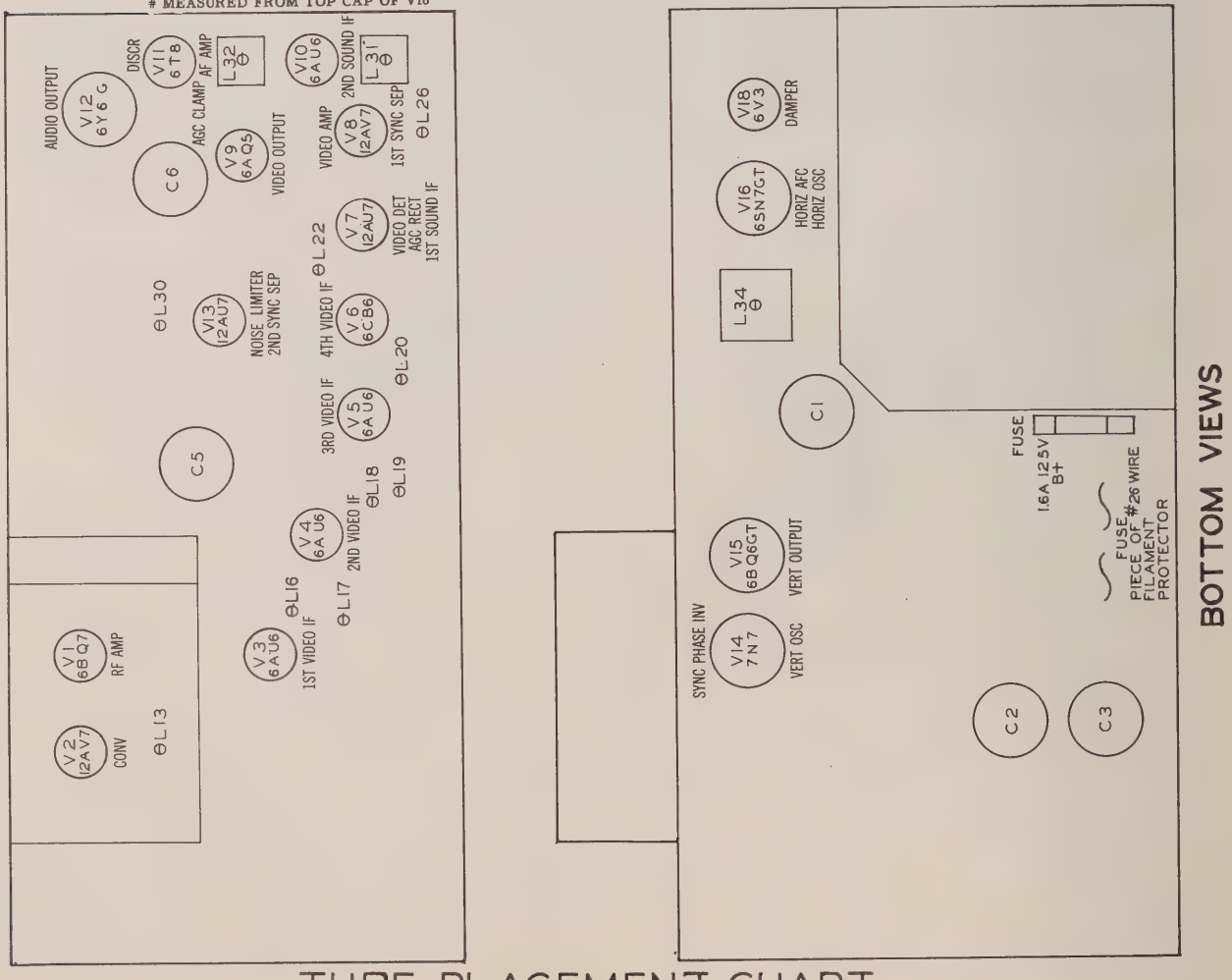


COMPENSATED
FIG. 3B

RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7	†3.2KΩ	500KΩ	INF	0Ω	.2Ω	INF	9.3Meg	0Ω	0Ω
V 2	12AV7	†3.5KΩ	100KΩ	0Ω	.2Ω	.2Ω	†16KΩ	10KΩ	.4Ω	.1Ω
V 3	6AU6	535KΩ	0Ω	0Ω	.1Ω	†2.4KΩ	†2.4KΩ	68Ω		
V 4	6AU6	540KΩ	0Ω	0Ω	.1Ω	†2.1KΩ	†2.1KΩ	68Ω		
V 5	6AU6	540KΩ	0Ω	0Ω	.1Ω	†1.8KΩ	†1.8KΩ	68Ω		
V 6	6CB6	.2Ω	220Ω	0Ω	.1Ω	†7.4KΩ	†2.1KΩ	0Ω		
V 7	12AU7	†2.8KΩ	120KΩ	150Ω	.1Ω	.1Ω	330KΩ	6.5KΩ	3.2KΩ	0Ω
V 8	12AV7	†3.8KΩ	8Meg	10KΩ	0Ω	0Ω	†9.8KΩ	1.2Meg	100Ω	.1Ω
V 9	6AQ5	750KΩ	300Ω	0Ω	.1Ω	†1.8KΩ	†3.8KΩ	750KΩ		
V 10	6AU6	680KΩ	0Ω	0Ω	.1Ω	†8.5KΩ	†8.5KΩ	0Ω		
V 11	6T8	INF	35KΩ	INF	0Ω	.4Ω	9.2Meg	0Ω	10Meg	†390KΩ
V 12	6Y6G	INF	.4Ω	†1.2KΩ	†4.7KΩ	470KΩ	†45Ω	0Ω	18Ω	
V 13	12AU7	33KΩ	33KΩ	10KΩ	0Ω	0Ω	13KΩ	7Meg	0Ω	.1Ω
V 14	7N7	.1Ω	0Ω	#2.8Meg	225KΩ	1Meg	9KΩ	0Ω	0Ω	
V 15	6BQ6GT	180KΩ	.1Ω	INF	†10KΩ	1.1Meg	INF	0Ω	0Ω	TOP CAP †355Ω
V 16	6SN7GT	1.1Meg	†40KΩ	300KΩ	270KΩ	†60KΩ	65Ω	.2Ω	0Ω	
V 17	6CD6G	†6KΩ	.2Ω	0Ω	INF	650KΩ	INF	0Ω	†6KΩ	TOP CAP #30Ω
V 18	6V3	INF	†47Ω	INF	.1Ω	0Ω	0Ω	†47Ω	Pin 8 INF / Pin 9 †47Ω	TOP CAP 110KΩ
V 19	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								TOP CAP #290Ω
V 20	1X2A	PINS 1 - 9 HAVE INF RESISTANCE								TOP CAP # INF
V 21	21EP4A	0Ω	475KΩ	PIN 10 #68KΩ	PIN 11 135KΩ	PIN 12 .1Ω				

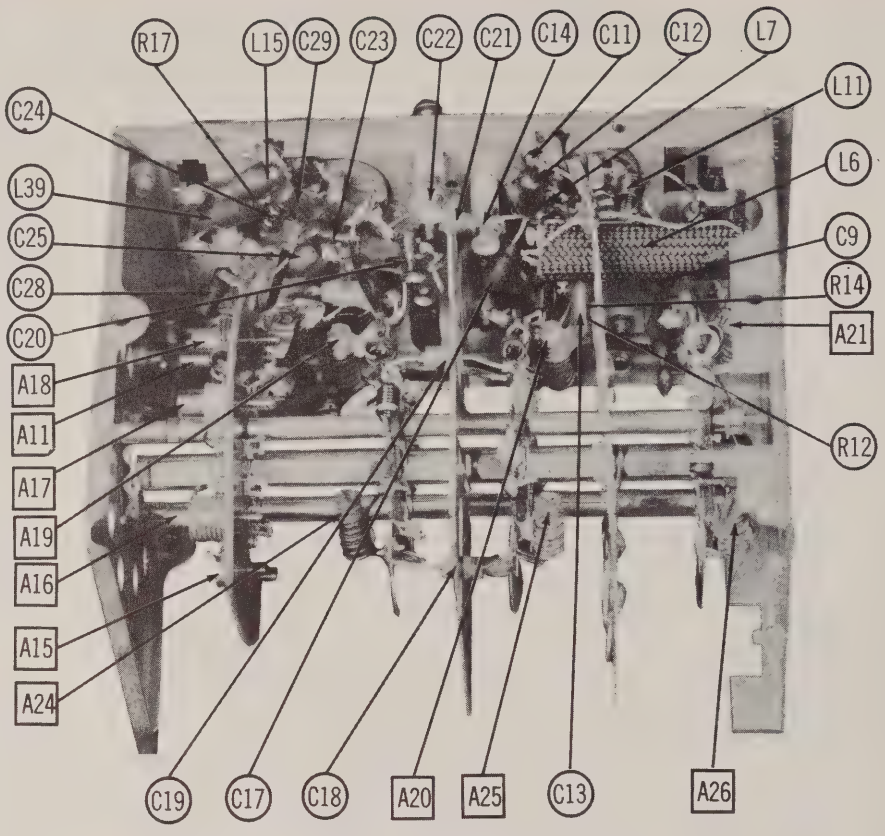
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM OUTPUT OF M1
# MEASURED FROM TOP CAP OF V18



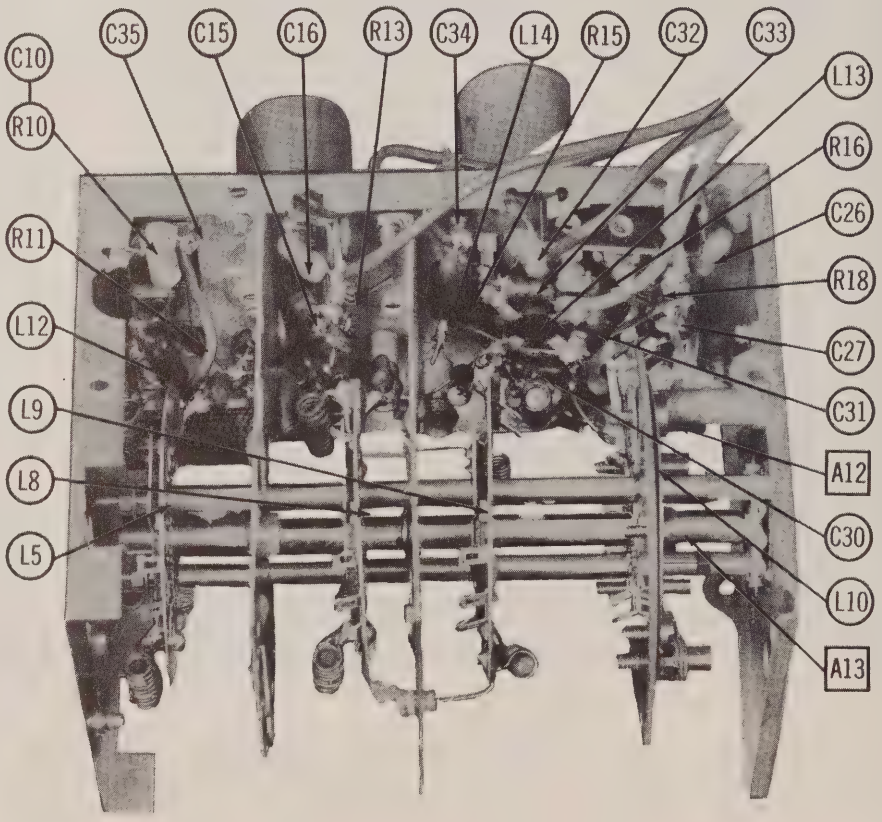
BOTTOM VIEWS

TUBE PLACEMENT CHART

RF-IF CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATON



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

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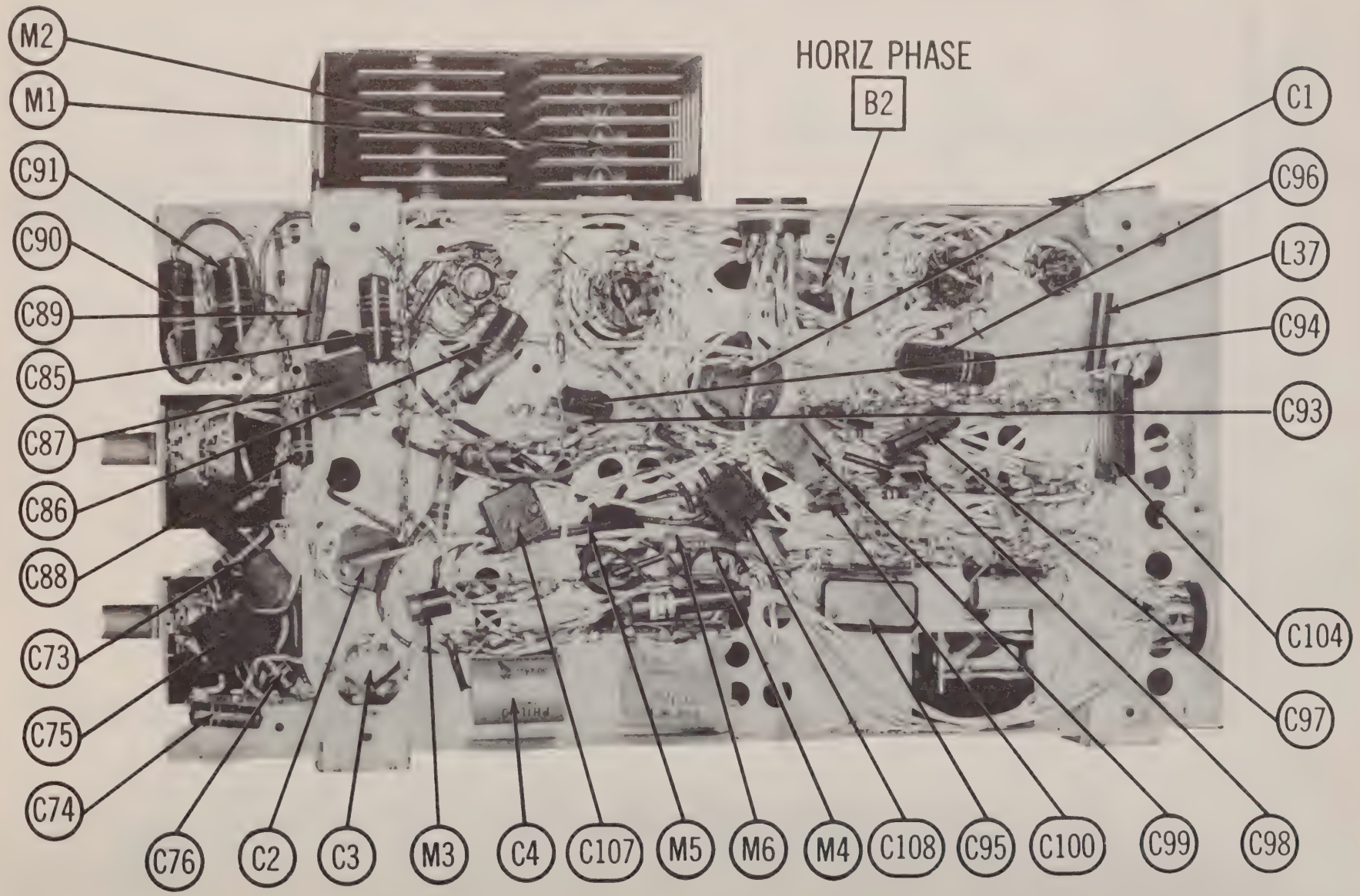
RF-IF CHASSIS-INDUCTOR AND ALIGNMENT IDENTIFICATION



SWEEP CHASSIS - CAPACITOR IDENTIFICATION

PROPERTY OF

SWEEP CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6BQ7	6BQ7	9AJ	
V2A	Converter	12AV7	12AV7	9A	
B	Converter	12AZ7	12AZ7	9A	
V3	1st. Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd. Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd. Video IF Amp.	6AU6	6AU6	7BK	
V6	4th. Video IF Amp.	6CB6	6CB6	7CM	
V7	Video Detector-AGC Rectifier-1st. Sound IF Amp.	12AU7	12AU7	9A	
V8	Video Amplifier 1st. Sync Separator	12AV7	12AV7	9A	
V9	Video Output	6AQ5	6AQ5	7BZ	
V10	2nd. Sound IF Amp.	6AU6	6AU6	7BK	
V11	Ratio Detector-AGC Clamper-AF Amplifier	6T8	6T8	9E	
V12	Audio Output	6Y6GT	6Y6G	7AC	
V13	Noise Limiter-2nd. Sync Separator	12AU7	12AU7	9A	
V14	Sync Phase Inv.-Vert. Oscillator	7N7	7N7	8AC	
V15	Vert. Output	6BQ6GT	6BQ6GT	6AM	
V16	Horiz. AFC-Horiz. Oscillator	6SN7GT	6SN7GT	8BD	
V17	Horiz. Output	6CD6G	6CD6G	5BT	
V18	Damper	6V3	6V3	9BD	
V19	HV Rectifier	1B3GT	1B3GT	3C	
V20A	HV Rectifier	1X2A	1X2A	9Y	
B	HV Rectifier	1X2	1X2	9Y	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V21A	21EP4A	21EP4A	12D	① Circuit changes necessary.
		21EP4 ①	12D	
		21FP4 ①	12C	
		21FP4A ①	12C	
B	20DP4A	20DP4A	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1	120	150	30-2570-66	E4A131		UPE15015		FP140	TVL-1428	
C2	120	150	30-2570-66	E4A131		UPE15015		FP140	TVL-1428	
C3A	⌀100	300	30-2584-7	AFH3-102		UPT435		rFP435.1	TVL-4704	
B	⌀20	300		PRS250/20				L TC65		
C	⌀10	450								
D	⌀20	200								
C4A	10	50	45-3018-19	PRS50/10-10		BRD10S		TCD52	TVA-2315	
B	10	50								
C5A	⌀30	300	30-2584-9	AFH4-124		UPT64235		FP344.5	TVL-3785	
B	⌀10	300								
C	⌀40	300								
C6A	⌀20	300	30-2584-10	AFH2-50		UP2145		FP330.5	TVL-3580	
B	⌀10	50								
C7	5	50	30-2417-7	E26E6		BBR-2-50T		TC302	TVA-1301	
C8	20		63-02039011	SI20	D6-200		GP1K-200	UC-542	5GA-Q2	
C9	150		63-11500191	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C10	10000		†	BPD-01	DD-103	TM5S1	831-01	DC-511	5HK-S1	
C11	220		30-1225-11	SI220	D6-221		GP2K-221	UC-5322	5GA-T22	
C12	220		30-1225-11	SI220	D6-221		GP2K-221	UC-5322	5GA-T22	
C13	2000		30-1238-5	BPD-002	DD-302	TM5D2	801-002	DC-522	5HK-D2	
C14	5-3		31-6520-5		829-3			CT565A		
C15	150		62-11500011	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C16	150		62-11500011	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C17	150		63-11500011	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C18	1.3		30-1231-7				NP0K-1R2			
C19	5		30-1221-13	S15NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C20	39		62-03949011	SI39	D6-390		GP1K-390	UC-5439	5GA-Q39	
C21	.59							CT565A		
C22	.5-3		31-6520-3		829-3					
C23	1.5		30-1224-59				N330K-1R5			
C24	4.7		30-1224-85	S15N750			N750K-4R7	NT-555	5TCUB-V47	
C25	150		62-11500011	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C26	150		62-11500011	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C27	1-6		31-6520-2		829-6					
C28	7.5		30-1224-84							
C29	12									
C30	15		62-01549001	SI15	D6-150		GP1K-150	UC-5415	5GA-Q15	
C31	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C32	150		62-11500011	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C33	150			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C34	1000		30-1245-1							
C35	1000		30-1245-1							
C36	330			SI330	D6-331		GP2K-331	UC-5333	5GA-T33	
C37	.068	400							4TM-S68	
C38	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C39	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C40	39		30-1224-63				N220K-390			
C41	100		63-11000001	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C42	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C43	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C44	22		62-02200901				GP1K-220		5TCU-Q22	
C45	33		63-03300901	SI33	D6-330		GP1K-330	UC-5433	5GA-Q33	
C46	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C47	.22	200		P468-22		D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15
C48	1500			SI1500		D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15
C49	1500			SI1500		D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C50	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C51	470		62-14700102I	21470	D6-471		GP2K-471	UC-5347	5GA-T47	
C52	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C53	56		62-05840011	SI56	D6-560		GP1K-560	UC-5456	5GA-Q56	
C54	8		30-1224-13							
C55	.1	200		P488-23	DF-104	PJ2P1		PT401	2TM-P1	
C56	.22	200				PTE4P22		PT4025	2TM-P22	
C57	.047	200		P288-047	DF-503	PTE4S47		PT4147	2TM-S47	
C58	.68		62-06840011	SI68	D6-680	5R5Q7	GP1K-680	UC-5468	5GA-Q68	
C59	.0047	600		P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C60	56		62-05640011	SI56	D6-560		GP1K-560	UC-5456	5GA-Q56	
C61	.22	400		P488-22		PTE4P22		PT4025	4TM-P22	
C62	56		62-05640011	SI56	D6-560		GP1K-560	UC-5456	5GA-Q56	
C63	.047	400		P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C64	.068	400		P488-068		PTE4S68			4TM-S68	
C65	56		62-05640011	SI56	D6-560		GP1K-560	UC-5456	5GA-Q56	
C66	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C67	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C68	.0033	400		P688-0033	D6-332	PTE6D33	GP2-333-332	PT6233	6TM-D3	
C69	330		62-13300100I	SI330	D6-331		GP2-333-332	UC-5333	5GA-T33	
C70	390	500	60-10305417	1469-0004		5R5T4		MC343	MS-34	
C71	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C72	.0022	400		P688-0022	D6-222	PTE6D22	GP2-333-222	PT6232	6TM-D22	
C73	.0047	400		P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C74	.015	200		P288-015		PTE6S15			6TM-S15	
C75	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C76	.0068	400		P688-0068	D6-682	PTE6D68	GP2-333-682		6TM-D68	
C77	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C78	.1	400		P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C79	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C80	.0068	1000	45-3505-93	P1088-0068		PTE10D68			MB-D68	
C81	.022	400		P488-022	DF-203	PTE4S22		PT4123	4TM-S22	
C82	33		62-03300900I	SI33	D6-330		GP1K-330	UC-5433	5GA-Q33	
C83	.015	200		P288-015		PTE6S15		MC237	6TM-S15	
C84	180	500	60-10185417	1469-0002		5R5T2		PT4147	4TM-S47	
C85	.047	400		P488-047	DF-503	PTE4S47		PT401	4TM-P1	
C86	.1	400		P488-1	DF-104	PTE4P1		PT411	4TM-S1	
C87	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT6247	6TM-D47	
C88	.0047	600		P688-0047	DF-472	PTE6D47	GP2-333-472	PT4122	4TM-S22	
C89	.022	200		P488-022	DF-203	PTE4S22		PT401	4TM-P1	
C90	.1	400		P488-1	DF-104	PTE4P1		PT411	4TM-S1	
C91	.1	400		P488-1	DF-104	PTE4P1		PT6233	6TM-D3	
C92	.0033	600		P688-0033	D6-332	PTE6D33	GP2-333-332	MC236		
C93	120	500	60-10125237	1469-0001		5R5T15		PT4222	6TM-D22	
C94	.0022	400		P688-0022	D6-222	PTE6D22	GP2-333-222	PT4147	4TM-S47	
C95	.047	400		P488-047	DF-503	PTE4S47			4TM-P15	
C96	.15	200		P288-15		PTE4P15		PT4122	4TM-S22	
C97	.022	200		P488-022	DF-203	PTE4S22		MC3241	MS-33	
C98	270	500	60-10275337	1469-0003		5R5T3		PT6247	6TM-D47	
C99	.0047	600		P688-0047	D6-472	PTE6D47	GP2-333-472			
C100	330	500	60-10335417	1469-0005		5R5T4		PT4147	4TM-S47	
C101	.047	400		P488-047	DF-503	PTE4S47				
C102	3300	500								
C103	68	400	30-1243-4							
C104	.047	400		P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C105	500	10000	30-1229-4	HV10C	TV3-501	MM-C10T5	413-501		5DDK-T5	
C106	500	10000	30-1229-4	HV10C	TV3-501	MM-C10T5	413-501		5DDK-T5	
C107	.01	600		689ZCZKY-01		PJ6S1		PT611	6TM-S1	
C108	.01	600		689ZCZKY-01		PJ6S1		PT611	6TM-S1	

† Items C10 and R10 are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	5 Meg	½	33-5565-31	QU1-141	AG-85-8	AB-87	SU-87	Height cont
B	Shaft		Not Req.	Not Reg.	FK8-1/4	AK-1	Not Req.	Attach to R1A
R2A	500KΩ	½	33-5585-2	QU1-133	AG-58-6	AB-59	SU-50	Vert linearity
B	Shaft		Not Req.	Not Reg.	FK8-1/4	AK-1	Not Req.	Attach to R2A
R3A	75KΩ	½	33-5563-43	QJ-302 *	RTV-241		UF753L	Horiz. hold-Panel
B	250KΩ						UR254L	Vert hold-Rear
R4A	2500Ω	2	33-5563-42		RTV-345			Contrast-wire wound-Panel
B	10KΩ	2						Brightness-wire wound-Rear
R5A	50KΩ	½	33-5565-30	QU1-133	AG-44-8	AB-51	SU-39	Horiz. osc. frequency
B	Shaft		Not Req.	RQ	FK8-1/4	AK-1	Not Req.	Attach to R5A
R6	20KΩ	4	33-5546-43		A10-30K	SVP-996	M20MP	Width -Wire Wound
B	Shaft		Not Req.		FK8-1/4	Not Req.	Not Req.	Attach to R6A
R7A	15Meg	½	33-5563-44	QJ-340 **				Tone-Panel-Note 1
B	2Meg	½						Volume-Tapped(B) 1Meg-Rear

*CONCENTRIKIT EQUIVALENT KIT K-2, BASE ELEMENTS & SHAFTS BI1-125 & P1-200 (Panel), BI1-130 & R1-216 (Rear)
** CONCENTRIKIT EQUIVALENT KIT K-2, BASE ELEMENTS & SHAFTS BI2-141 & P1-200 (Panel), BI8-139X & R1-216 (Rear) & SWITCH 76-1
Note: Some models use 5 Meg panel element.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	NOTES
R6	100KΩ	½		BTS-100K	
R9	1 Meg	½		BTS-1 Meg	Note 1
R10	470KΩ	½	†	BTS-470K	
R11	22KΩ	½			
R12	1 Meg	½		BTS-1 Meg	
R13	1000Ω	½		BTS-1000	
R14	1 Meg	½		BTS-1 Meg	
R15	100KΩ	½			
R16	1000Ω	½		BTS-1000	
R17	10KΩ	½			
R18	1000Ω	½		BTS-1000	
R19	15KΩ	2	66-3155340	BTB-15K	
R20	2200Ω	1	66-2224340	BTA-2200	
R21	330KΩ	1		BTS-330K	
R22	3.3Meg	½		BTS-3.3Meg	
R23	6800Ω	½			
R24	68Ω	½			
R25	330Ω	½		BTS-330	
R26	330Ω	½		BTS-330	
R27	12KΩ	½		BTS-12K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	NOTES
R28	68Ω	½			
R29	330Ω	½		BTS-330	
R30	33KΩ	½			
R31	330Ω	½		BTS-330	
R32	330Ω	½		BTS-330	
R33	12KΩ	½		BTS-12K	
R34	1 Meg	½		BTS-1 Meg	
R35	8200Ω	½			
R36	220Ω	½		BTS-220	
R37	330Ω	½		BTS-330	
R38	5600Ω	1	66-2564340	BTA-5600	
R39	100KΩ	½		BTS-100K	
R40	100KΩ	½		BTS-100K	
R41	330KΩ	½		BTS-330K	
R42	3300Ω	½		BTS-3300	
R43	330Ω	½		BTS-330	
R44	8.2Meg	½		BTS-8.2Meg	
R45	1.2Meg	½		BTS-1.2Meg	
R46	100Ω	½		BTS-100	
R47	2700Ω	½		BTS-2700	

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	NOTES
R48	3300Ω	1		BTS-3300	
R49	5600Ω	1		BTA-5600	
R50	12KΩ	1		BTA-12K	
R51	1.2Meg	½		BTS-1.2Meg	
R52	1.8Meg	½		BTS 1.8Meg	
R53	2200Ω	½		BTS-2200	
R54	1000Ω	½		BTS-1000	
R55	1800Ω	7	33-1335-102	1 3/4A-1750	
R56	470KΩ	½		BTS-470K	
R57	120KΩ	½		BTS-120K	
R58	22KΩ	½		BTS-22K	
R59	82KΩ	½		BTS-82K	
R60	470KΩ	1	66-4474340	BTA-470K	
R61	120KΩ	½		BTS-120K	
R62	150Ω	½		BTS-150	
R63	1000Ω	½		BTS-1000	
R64	680KΩ	1		BTA-680K	
R65	12KΩ	1	66-3124340	BTA-12K	
R66	22KΩ	2	66-3225340	BTB-22K	
R67	270Ω	½		BTS-270	
R68	56KΩ	½		BTS-56K	
R69	33KΩ	½		BTS-33K	
R70	150KΩ	½		BTS-150K	
R71	10KΩ	½		BTS-10K	
R72	68KΩ	½		BTS-68K	
R73	15KΩ	½		BTS-15K	
R74	10Meg	½		BTS-10Meg	
R75	22KΩ	½		BTS-22K	
R76	270KΩ	½		BTS-270K	
R77	100KΩ	½		BTS 100K	
R78	470KΩ	½		BTS-470K	
R79	180Ω	2	66-1184340	1 3/4A-180	
R80	33KΩ	1	66-3335340	BTA-33K	
R81	18KΩ	2	66-3185430	BTB-18K	
R82	5600Ω	2	66-2565340	BTB-5600	
R83	1500Ω	12	33-3435-34	2D-1500	
R84	1000Ω	7	33-1335-89	1 3/4A-1000	Note 2
R85	1.2Meg	½		BTS-1.2Meg	
R86	10KΩ	1		BTS-10K	
R87	47KΩ	1		BTA-47K	
R88	180KΩ-5%	½		BTS-180K-5%	
R89	39KΩ-5%	½		BTS-39K-5%	
R90	270KΩ	½		BTS-270K	
R91	100KΩ	½		BTS-100K	
R92	5.6Meg	½		BTS-5.6Meg	
R93	1.2Meg	½		BTS-1.2Meg	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	NOTES
R96	15KΩ	½		BTS-15K	
R95	10KΩ	½		BTS-10K	
R96	1 Meg	½		BTS-1 Meg	
R97	6800Ω	½		BTA-6800	
R98	8200Ω	1	66-2824340	BTA-8200	
R99	12KΩ	2	66-3125340	BTB-12K	
R100	10KΩ	½		BTS-10K	
R101	4700Ω	½		BTS-4700	
R102	4700Ω	½		BTS-4700	
R103	4700Ω	½		BTS-4700	
R104	180KΩ	½		BTS-180K	
R105	15KΩ	½		BTS-15K	
R106	1.8Meg	½		BTA-1.8Meg	
R107	680Ω	½		BTS-680	
R108	1 Meg	½		BTS-1 Meg	
R109	220KΩ	½		BTA-220K	
R110	18KΩ	2	66-1385340	BTB-18K	
R111	22KΩ	2	66-3224340	BTB-22K	
R112	1.2Meg	½		BTS-1.2Meg	
R113	3.3Meg	½		BTS-3.3Meg	
R114	390KΩ-5%	½		BTS-390K-5%	
R115	470KΩ	½		BTS-470K	
R116	820Ω	½		BTS-820	
R117	180KΩ	½		BTS-180K	
R118	82KΩ	½		BTS-82K	
R119	390KΩ-5%	½		BTS-390K-5%	
R120	18KΩ	½		BTS-18K	
R121	12KΩ	2	66-3125340	BTB-12K	
R122	47KΩ	½		BTA-47K	
R123	470KΩ	½		BTS-470K	
R124	47Ω	1			
R125	5100Ω	5	33-1335-18	1 3/4A-5000	
R126	10KΩ	2	66-3105340	BTB-10K	
R127	68KΩ	1	66-3684540	BTA-68K	
R128	47KΩ	1		BTA-47K	
R129	1000Ω	½		BTS-1000	
R130	2.5Meg	2			
R131	2.5Meg	2			
R132	7.5Ω	15	33-3448		
R133	68Ω	½			
R134	10KΩ	½		BTS-10K	
R135	100KΩ	½		BTS-100K	
R136	220KΩ	1		BTA-220K	
R137	.24Ω	3			
R138	2700Ω	2		BW-2-270	
R139	10Ω	½			

Note 1, Not used in all models.
Note 2, Not used in models employing EM Speaker.
† Items R10 & C10 are combined in one unit.

TRANSFORMER (FILAMENT)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC	12VAC	6.8VAC	6.7VAC	32-8519				
	ⓐ .1A	.003ADC	ⓑ 6.4A	ⓐ 6A					

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	170Ω	325Ω	32-8431-3			TBO-4		Vert. Osc. Trans.
			32-8431-2 ①					
T3	323ΩTap 0Ω @ 40Ω	SEC. 2	32-8533					Horiz. Output Trans.
T4	63Ω	14Ω	32-8515					Vert. output Trans.
T5A	22Ω		76-7188					Horiz. Deflection Coils
B	49Ω							Vert. Deflection Coils

.LAlternate Vert. Osc. Trans.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T6	2.3KΩ	4Ω	194Ω	.4Ω	32-8522	A-3825 ↓	A-2928 ↓	RO-2 ↓	S-1X ①	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: PHILCO PART No	JENSEN PART No.	QUAM PART No.	NOTES
SP1	10"	PM	4Ω	36-1610-9 36-1640-2 ↑	10J11	10A4A	↑Alternate 6" X 11" speaker.

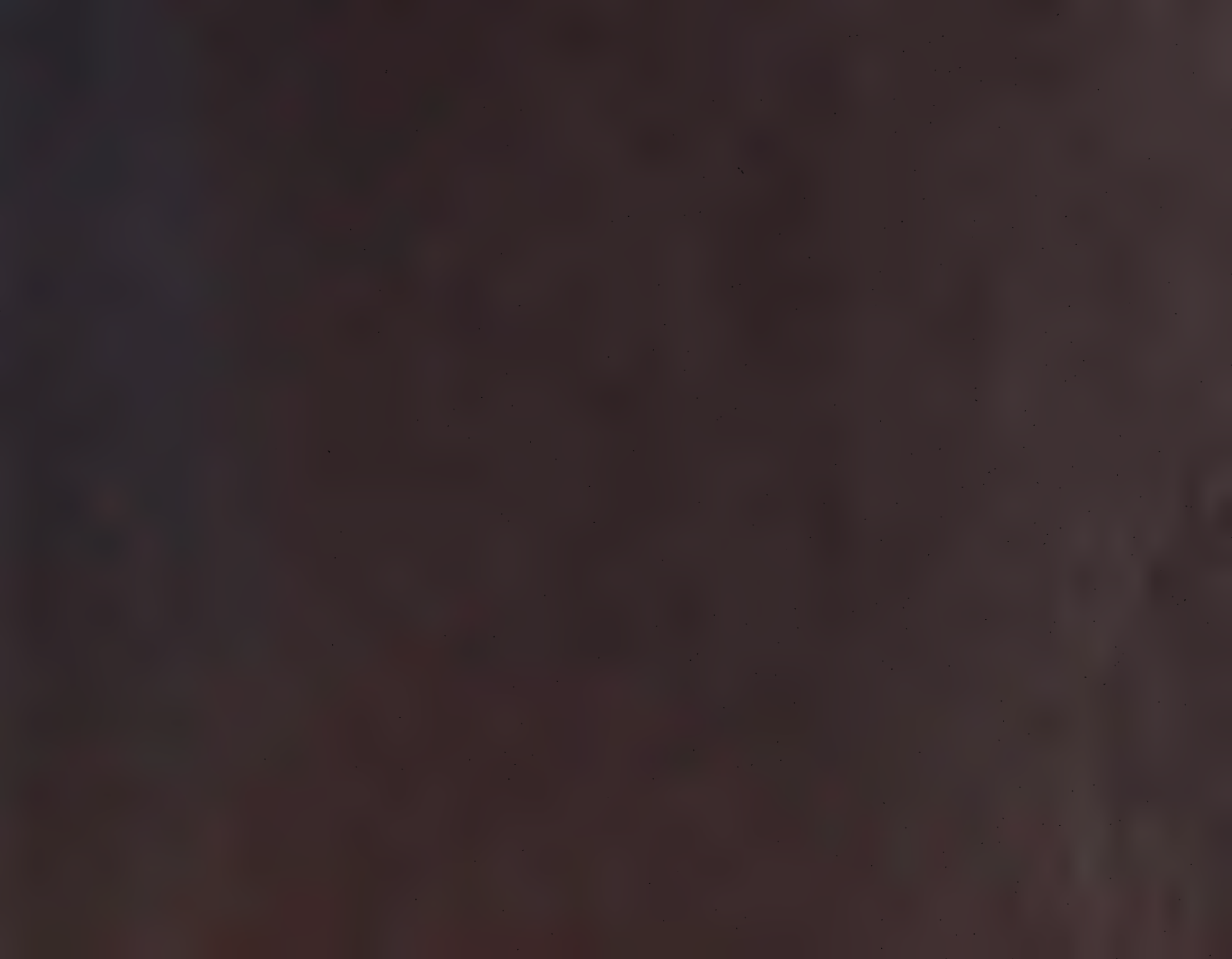
FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE @ CURRENT 1000 ⁄	REPLACEMENT DATA: PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.310	45Ω	2.5 Hy.	32-8514	C-3326 ① *	C-2996 ①	TR-HHH	C-25A ↓

① Drill one new mtg. hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: PHILCO PART No.	MERIT PART No.	NOTES
L2	Ant. Trans.	.8Ω	0Ω	76-7071		Part of L3
L3	Ant. Trans.	0Ω	.8Ω	76-7071		Part of L2
L4	PM Trap	0Ω		76-8071		Part of L2 & L3



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF) CONT.

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA MERIT PART No.	NOTES
L5	Ant. Coils	0Ω		76-7077		Included wafer & coils
L6	150ΩLine Coil	0Ω		32-4527		
L7	RF Choke	.8Ω		32-4112-22		
L8	RF Plate Coils	0Ω		76-6895		Includes wafer & coils
L9	Mixer Grid Coils	0Ω		76-7098		Includes wafer & coils
L10	Osc. Coils	0Ω		76-6784		Includes wafer & coils
L11	Fil. Choke	0Ω		312-5132		
L12	Fil. Choke	0Ω		32-4112-2		
L13	1st. Video IF	.5Ω		32-4359-12		
L14	Fil. Choke	0Ω		32-4112-2		
L15	Fil. Choke	0Ω		32-4112-2		
L16	2nd. Video IF	.2Ω		32-4486	TV-112	
L17	Adj. Chan. Sound Trap	0Ω		32-4303-3		
L18	3rd. Video IF	.2Ω		32-4486	TV-112	
L19	Adj. Chan. Video Trap	0Ω		32-4496		
L20	4th. Video IF	.2Ω	.2Ω	32-4486-6		
L21	Fil. Choke	0Ω		32-4112-15		
L22	5th. Video IF	.2Ω		32-4486	TV-112	
L23	RF Choke	0Ω		32-4112-15		
L24	Series Peak. Coil	2Ω		32-4143-16	TV-180	40 Microheneries
L25	Shunt Peak Coil	3.6Ω		32-4143-17	TV-181	100 Microhenerise
L26	4.5MC Trap	1.8Ω		32-4463-2	TV-151	
L27	Series Peak Coil	.5Ω		32-4143-18		10 Microheneries
L28	Fil. Choke	0Ω		32-4112-15		
L29	Shunt Peak Coil	5.5Ω		32-4480-15	TV-184	220 Microheneries
L30	Variable Peak. Coil	3.8Ω		32-4467-7		165 Microheneries
L31	Sound IF	5Ω		32-4449A		
L32	Ratio Detect.	5.3Ω	.8Ω CT	32-4450-5		Tertiary .8Ω
L33	Fil Choke	.2Ω		32-4112-15		
L34	Hor. Osc. Trans.	65Ω	24Ω	32-8551		
L35	Ant.-Ringing Coil	4.8Ω		32-4480	TV-184	180 Microheneries
L36	RF Choke	2Ω		32-4112-24		
L37	RF Choke	2Ω		32-4112-24		
L38	Fil. Choke	0Ω				30" #22wire
L39	Cathode Choke	.4Ω		32-4112-25		

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA PHILCO PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	NOTES
M1	.325	34-8003-8	NH5	6QS2	1021A	6S350	
M2	.325	34-8003-8	NH5	6QS2	1021A	6S350	
M3	.003A	34-8003-9			1154	8520 ①	

① Solder lugs to terminal strip lugs as original.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA PHILCO PART No. FUSE	PHILCO PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M4	3 AG - Slo-Blo P/T	1 6/10 A. 125V.	45-2656-23		31501.6		MDV-1 6/10	
M5	#26 Wire	6A 6.7V.			311010			
M6	#26 Wire	6.4A 6.8V			311010			

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA PHILCO PART No.		NOTES
M7	Bayonet	6-8	.15	Brown			Type #47

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M8	RF Tuner	76-7070	
M9	Focus Magnet	76-6126-4	
M10	Ion Trap	76-6077-2	
M11	Magnet Assembly	76-6594	Anti-Pin Cushion Correction (2 required)
B1	Trimmer	31-6473-32	Horiz. Lock-in (45-370MMF)
	Knob	54-4750	Antenna Tuning
	Knob	54-4799	Brightness Vert. Hold & Off/On Volume
	Knob	76-6046	Channel Selector
	Knob	76-6048	Contrast & Horiz. Hold
	Knob	76-6104	Fine Tuning
	Safety Glass	54-7943-49	Models 52-T2145X, Code 125 & 52-T2245 Code 121
	Safety Glass	54-7943-51	Models 52-T2182, Code 121 & 52-T2282 Code 121
	Mask	56-8578-8	Model 52-T2245, Code 121
	Mask	54-8573	Model 52-T2282, Code 121
	Mask	54-8573-1	Model 52-T2145X, Code 125
	Mask	56-8578-11	Models 52-T2182, Code 121

PROPERTY OF
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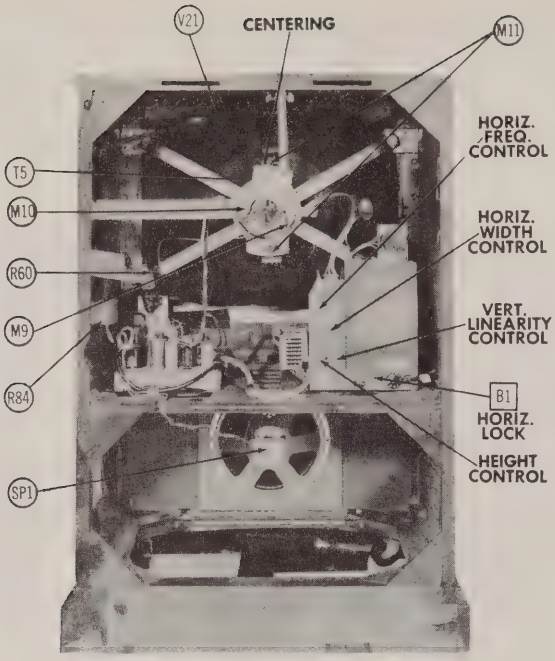
ER, COLORADO

SWEEP CHASSIS-RESISTOR AND INDUCTOR IDENTIFICATION



CABINET–REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

If normal adjustment of the horizontal hold control fails to maintain horizontal sync adjust as follows:

Turn the horizontal hold control fully clockwise.

Adjust the horizontal frequency control until 4 diagonal black bars appear, sloping to the right.

Turn the horizontal hold control counter clockwise until the picture comes in, then out of sync.

If necessary, momentarily turn to another channel to throw the picture out of sync.

Turn the horizontal hold control slowly clockwise and note the least number of diagonal black bars appearing just before the picture falls into sync.

Adjust the horizontal lock-in trimmer (B1) for 3 bars just before synchronization.

If the above adjustments do not give satisfactory synchronization it may be necessary to adjust the horizontal stabilizing slug (B2).

Connect an oscilloscope through a 15MMF capacitor to pin 6 (Cathode) of 6SN7 (V16). Adjust B2 for a curve similar to fig. 4.

The average line of the scope is established by momentarily shorting the input leads of the scope. Points "A" should coincide with the average line of scope.

Turn the horizontal hold control fully clockwise.

Adjust the horizontal frequency control until 4 diagonal black bars appear, sloping to the right.

If 4 diagonal black bars cannot be obtained by adjusting the horizontal frequency control as above, adjust the horizontal oscillator slug (B3) for the desired result.

Adjust the width control for a picture slightly wider than necessary to fill the picture mask horizontally.

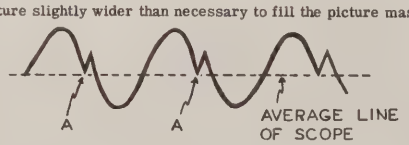
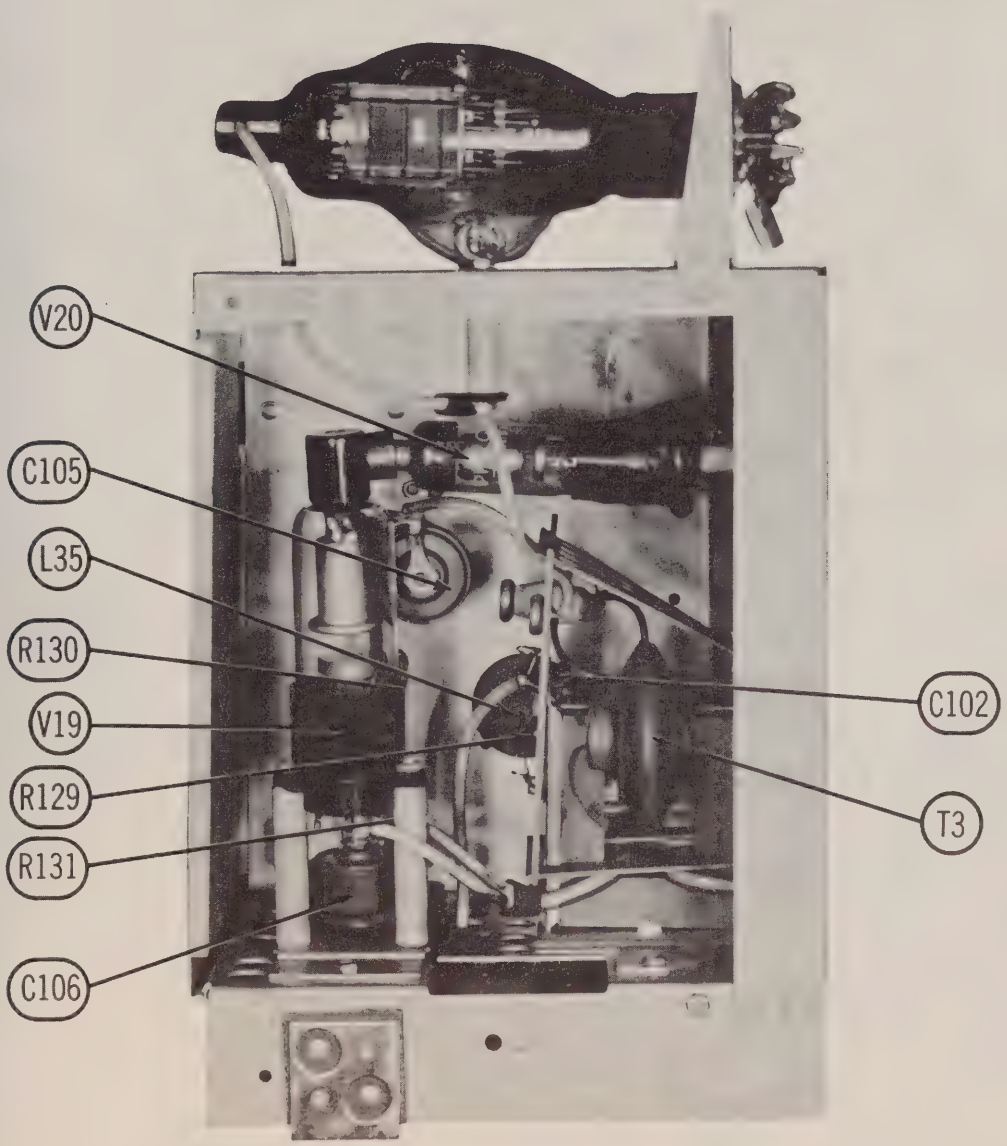


FIG. 4

DISASSEMBLY INSTRUCTIONS

1. Remove 8 push on type control knobs from front panel.
2. Remove 13 wood screws. Remove rear cover.
3. Disconnect speaker. Remove 2 wood screws. Remove filter resistor bracket.
4. Disconnect Vol. control plug, focus & deflection plug, interconnecting chassis cable, crt. socket and HV lead.
5. Remove 8 chassis bolts. Remove RF-IF chassis and sweep chassis.
6. Remove 4 Speaker nuts. Remove speaker.

NOTE:
FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUT LINED A BOVE.



HIGH VOLTAGE COMPARTMENT

RCA VICTOR MODELS 2B400, 2B401, 2B402, 2B403, 2B404, 2B405 (Ch. RC-1114)

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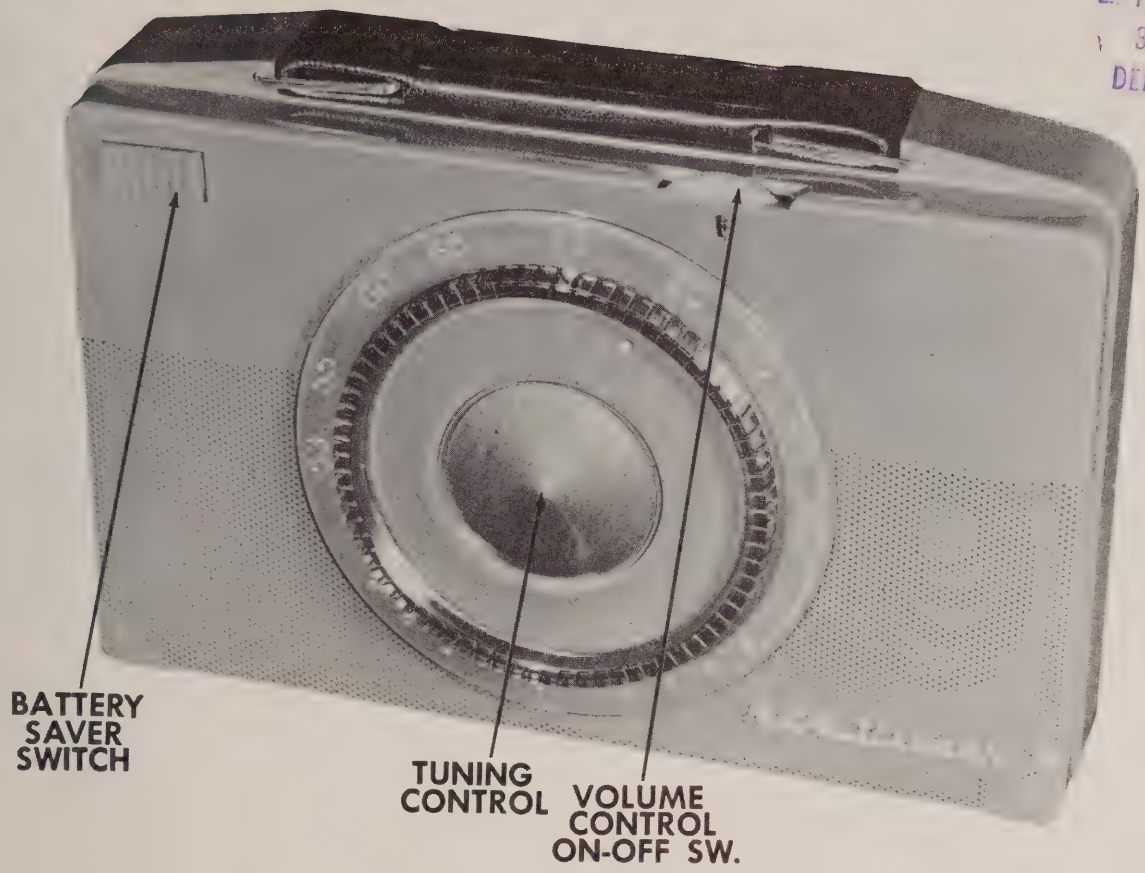
RCA VICTOR MODELS 2B400, 2B401, 2B402, 2B403, 2B404, 2B405 (Ch. RC-1114)



RCA VICTOR MODELS 2B400, 2B401, 2B402, 2B403, 2B404, 2B405 (Ch. RC-1114)

TRADE NAME	RCA Victor Model 2B400, 2B401, 2B402, 2B403, 2B404, 2B405 (Ch. RC-1114)
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, N.J.
TYPE SET	Battery Operated Personal Portable Superheterodyne Receiver
TUBES (Four)	Types 1R5 Conv., 1U4 IF Amp., 1U5 Det.-AVC-AF Amp., 3V4 Audio Output
POWER SUPPLY	1.5 Volts "A" Supply & 67.5 Volts "B" Supply
RATING	200 or 250 MA @ 1.5 Volts DC & 5.45 or 8.45 MA @ 67.5 Volts DC (Drain Varies with Saver Switch Position)
TUNING RANGE—BROADCAST	540-1600 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to antenna terminal lug which connects to pin 6 (grid) of 1R5 (V1). Low side to chassis.	455 KC (400~ Mod.)	Point on non-interference near 1600 KC.	Across Voice Coil	A1, A2, A3, A4	Adjust for maximum output. Repeat step 1 for greatest accuracy.
2.		Loop	1400 KC	Tune in 1400 KC signal	"	A5	Connect high side of signal generator to short loop of wire placed near antenna coil to radiate signal into receiver. Adjust A5 for maximum output while rocking tuning gang.
3.		"	600 KC	Tune in 600 KC signal	"	A6	Adjust for maximum output while rocking tuning gang. Repeat steps 2 and 3.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		RCA Victor PART No.	STANDARD REPLACEMENT		
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1U4	1U4	6AR	
V3	Det-AVC-AF Amp	1U5	1U5	6BW	
V4	Audio Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA VICTOR PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	10	70	73964	PRS150/12		BBR-10-90		TC42	TVA-1406	
C2	56		73784	SI56	D6-560		GP1K-560	UC-5456	5GA-Q56	
C3	10000		73960	BPD-01	DD-103	TM5S1	821-01			
C4	.003	200	73961	P285-003	D6-302	ZNW2D3	GP2-333-302	UC-523	68P3	
C5	3		57090							
C6	82		75785	SI82	D6-820		UC-5482		5GA-Q82	
C7	56		75784	SI56	D6-560		GP1K-560	UC-5456	5GA-Q56	
C8	.047	200	73558	P288-047	DF-503	PJ2S5		PT4147	2TM-S47	
C9	.002	200	73750	P285-002	D6-202	ZNW6D3	GP2-333-202	MT607	68P27	
C10	.02	200	71928	P285-02	DF-203	ZNW2S2			68P15	
C11	82		75785	SI82	D6-820		GP1K-820		5GA-Q82	
C12	.001	200	72792	P285-001	D6-102	ZNW2D1	GP2L-102	MT605	68P1	
C13	.002	200	73750	P285-002	D6-202	ZNW6D2	GP2-333-202	MT607	68P27	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	RCA Victor PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1	2 Meg	½	75773					Volume & Switch

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA Victor PART No.	IRC PART No.	
R2	100KΩ	½	504410	BTS-100K	
R3	15KΩ	½	503315	BTS-15K	
R4	3.3Meg	½	504533	BTS-3.3Meg	
R5	47KΩ	½	504347	BTS-47K	
R6	3.9Meg	½		BTS-3.9Meg	Note
R7	1000Ω	½	504210	BTS-1000	

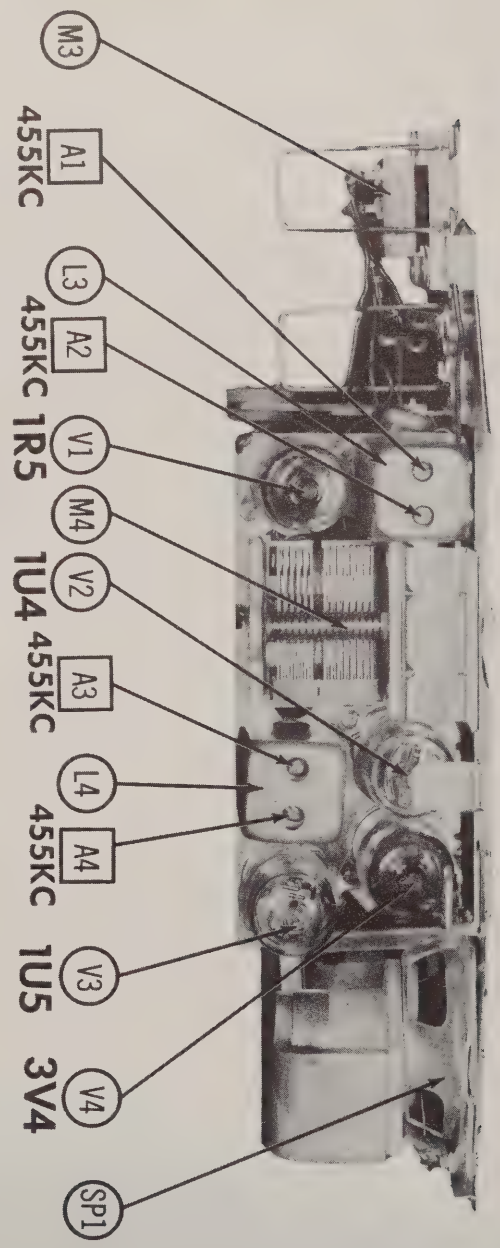
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA Victor PART No.	IRC PART No.	
R8	10Meg	½	504610	BTS-10Meg	
R9	4.7Meg	½	504547	BTS-4.7Meg	
R10	1 Meg	½	504510	BTS-1 Meg	
R11	3.3Meg	½	504533	BTS-3.3Meg	
R12	390Ω	½	503139	BTS-390	
R13	390Ω	½	503139	BTS-390	

Note Some models use a 4.7Meg resistor in this application.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	7.2KΩ	14Ω	347Ω	.95Ω	9417542					

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor -PART No.	JENSEN PART No.	QUAM PART No.	
SP1	2 X 3"	PM	14Ω	92523W			

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	RCA Victor PART No.	MERIT PART No.	
L1	Loop Ant.	1.4Ω		76847		
L2	Osc. Coil	1Ω	6Ω	75774	BC-381	
L3	Input IF	22Ω	22Ω	76849		
L4	Output IF	18.5Ω	18.5Ω	76850		

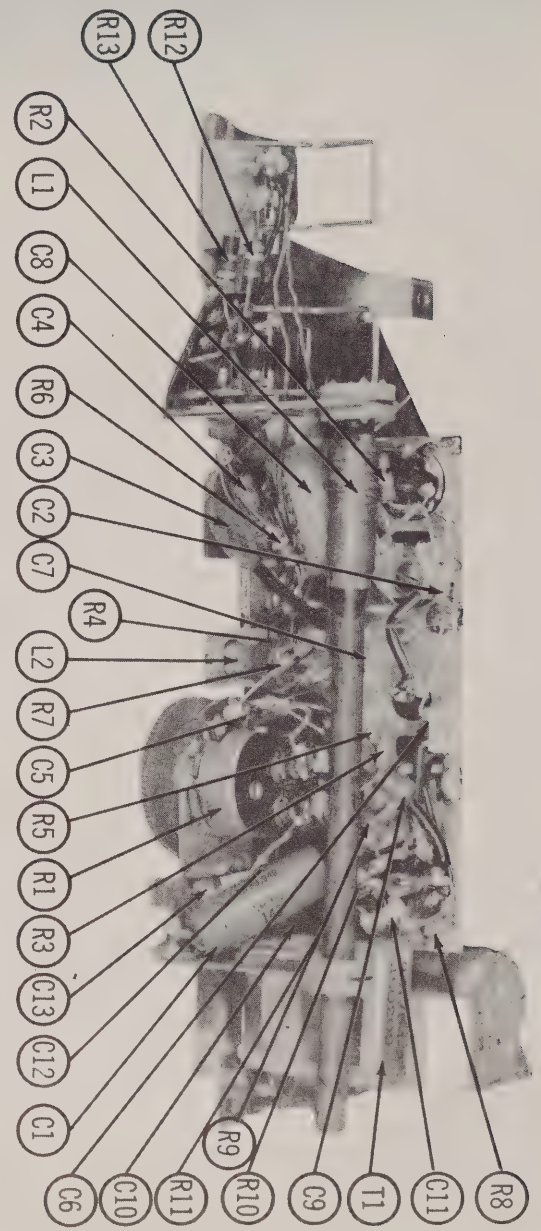
BATTERIES

ITEM No.	VOLTAGE	RCA Victor PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M1	1.5V	VS236	964			21R			Two used in parallel.
M2	67.5V	VS216		477			P45		

MISCELLANEOUS

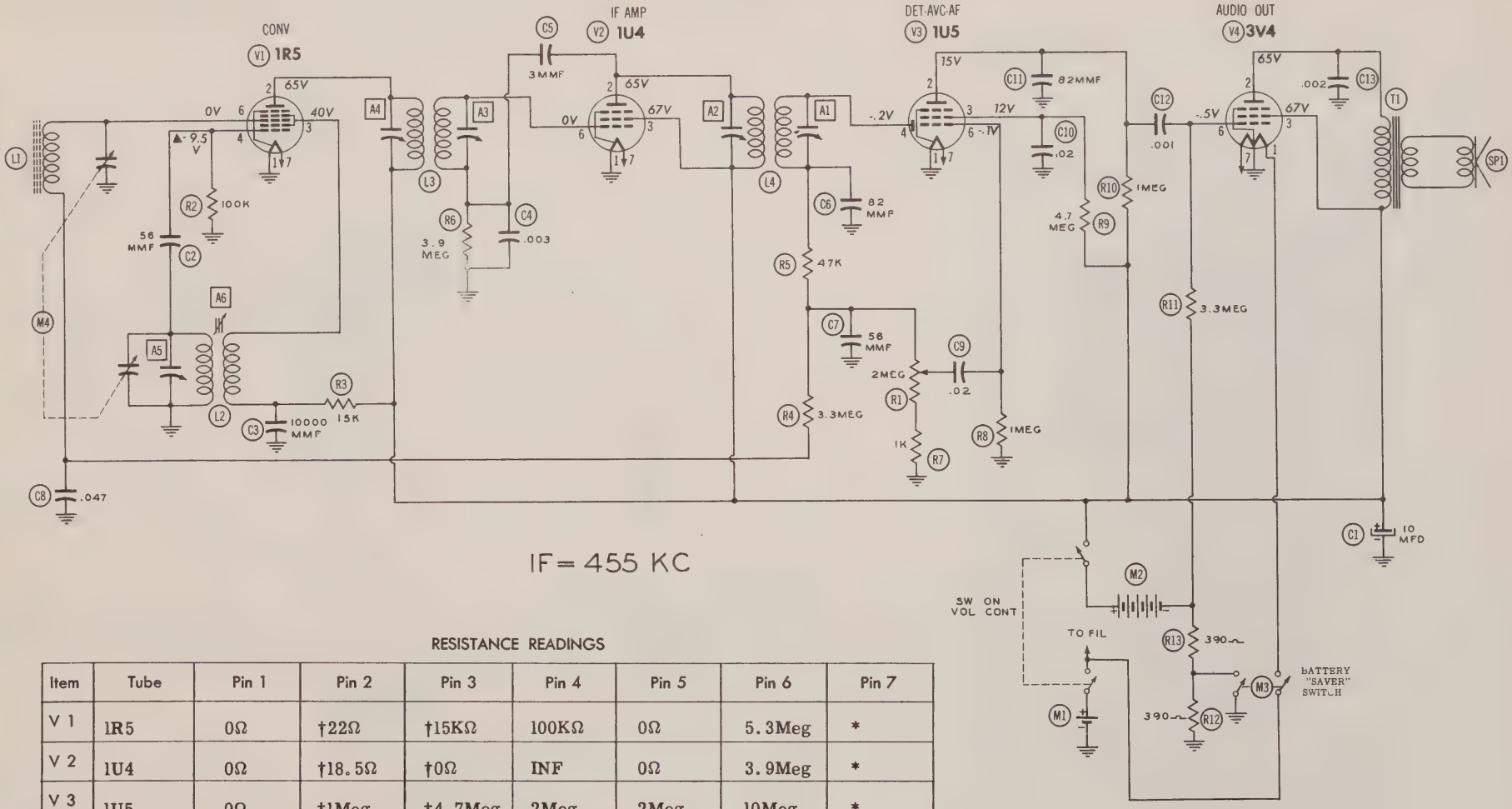
ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M3	Switch	76848	Battery Saver
M4	2 Gang Var. Cap.	76846	(3-255MMF, 7-185MMF)
	Case	76860	Model 2B400-Grey
	Case	77154	Model 2B401-Black
	Case	77155	Model 2B402- Ivory
	Case	77156	Model 2B403-Green
	Case	77157	Model 2B404-Tan
	Case	77158	Model 2B405-Red
	Case Back	76841	Model 2B400-Grey
	Case Back	76159	Model 2B401-Black
	Case Back	76160	Model 2B402-Ivory
	Case Back	76161	Model 2B403-Green
	Case Back	76162	Model 2B404-Tan
	Case Back	76163	Model 2B405-Red
	Knob	76856	Tuning-Model 2B400- Grey
	Knob	77174	Tuning-Model 2B401-Black
	Knob	77175	Tuning-Model 2B402-Ivory
	Knob	77176	Tuning-Model 2B403-Green
	Knob	77177	Tuning-Model 2B404-Tan
	Knob	77178	Tuning-Model 2B504-Red

CHASSIS—BOTTOM VIEW



2828 DANE ST.
DENVER, COLORADO

RCA VICTOR
MODEL 2B400 (Ch. RC-1114)



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	0Ω	†22Ω	†15KΩ	100KΩ	0Ω	5.3Meg	*
V 2	1U4	0Ω	†18.5Ω	†0Ω	INF	0Ω	3.9Meg	*
V 3	1U5	0Ω	†1Meg	†4.7Meg	2Meg	2Meg	10Meg	*
V 4	3V4	*	†347Ω	†0Ω	780Ω	0Ω	3.3Meg	*

BATTERY SAVER SWITCH IS IN "NORMAL" POSITION. (EXTREME LEFT).
† MEASURED FROM INPUT OF B+
▲ TAKEN WITH VACUUM TUBE VOLTMETER
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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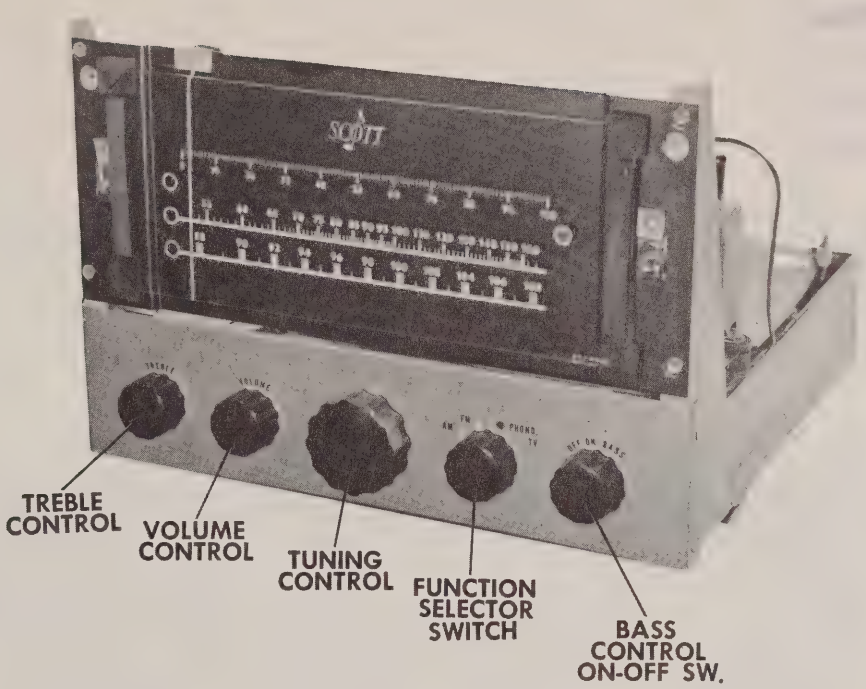
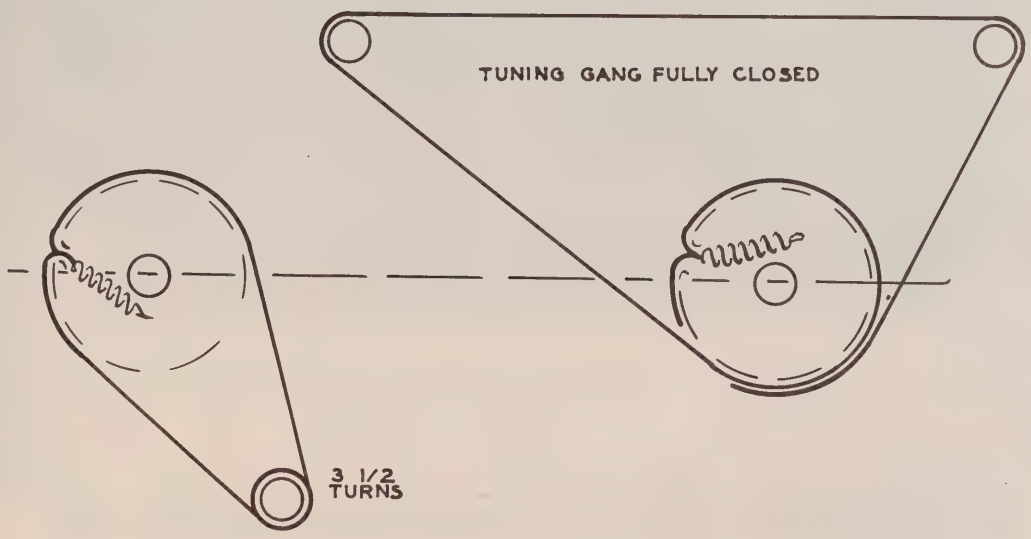
181-10

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SCOTT
MODEL 1510



TRADE NAME	Scott Model 1510
MANUFACTURER	Scott Radio Laboratories, 4541 Ravenswood Ave., Chicago, Ill.
TYPE SET	AC Operated AM-FM Combination Superheterodyne Receiver for Custom Installation
TUBES (Fourteen)	Types 6CB6 FM RF Amp., 12AT7 FM Conv., 6BA6 AM RF Amp., 6BE6 AM Conv., 6BA6 1st. FM AM IF Amp., 6AU6 2nd. FM IF Amp., 6AL5 Ratio Det., 6SQ7 AM Det. -1st. AF Amp., 6SN7GTA 2nd. AF Amp.-Cath. Fol., 6SN7GTA Phase Inv., (2) 6L6G Audio Output, 5U4G Rect., 6SC7 Phono Pre Amp.
POWER SUPPLY	110-120 Volts AC — RATING 1.23 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	535-1620 KC — FREQ. MOD. 87.5-108.5MC



DIAL CORD DRIVE

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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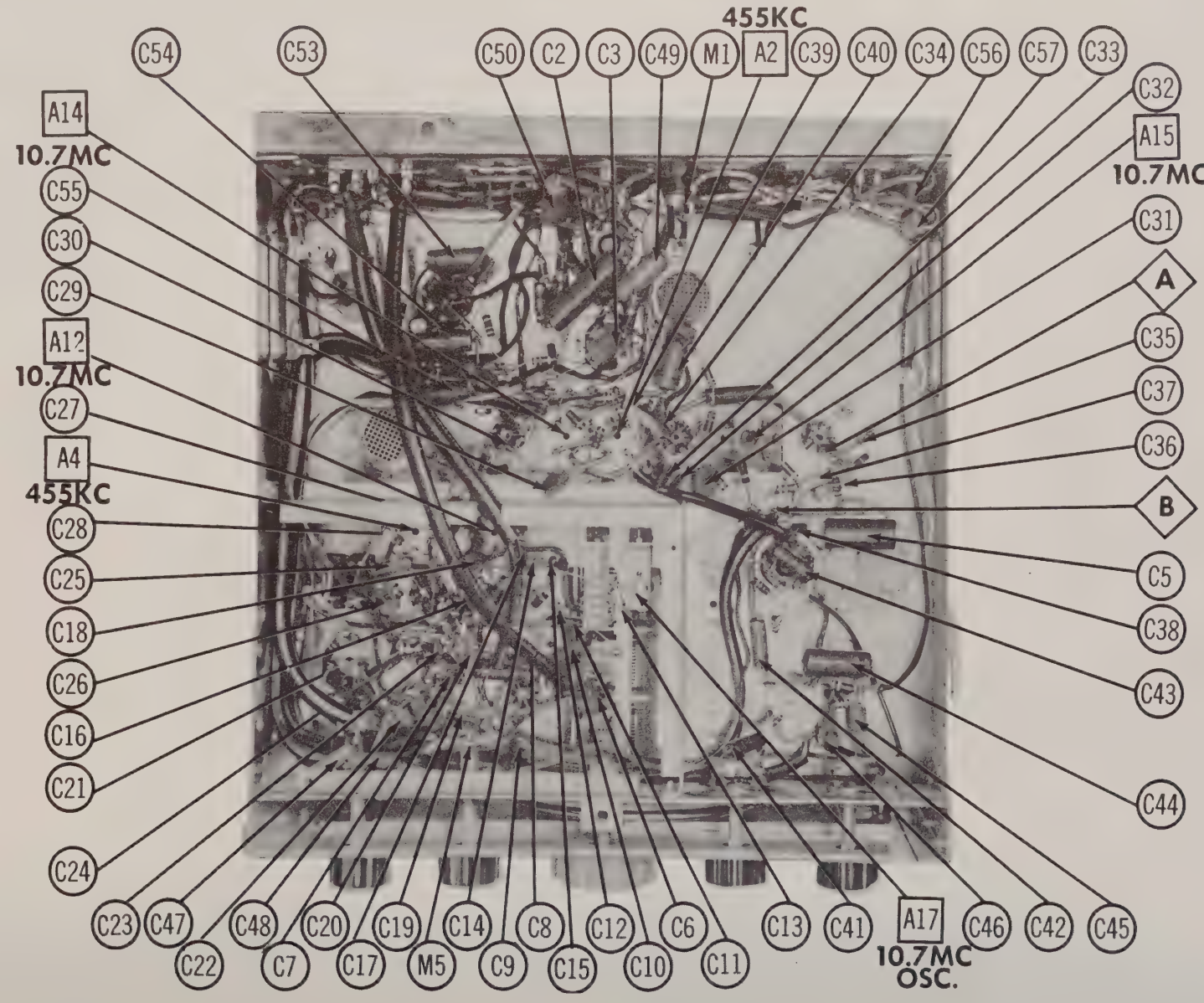
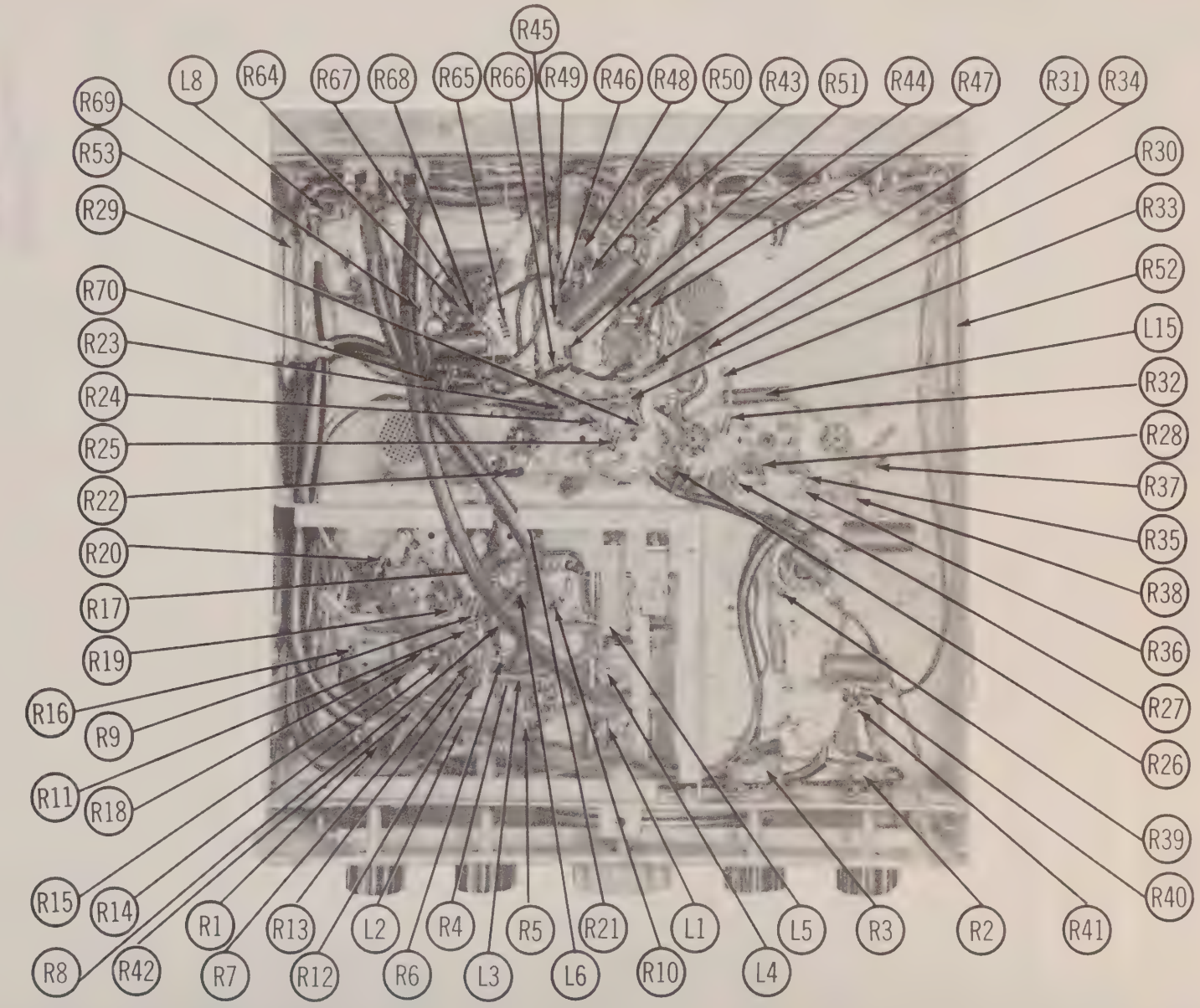

455KC
C54
C53
C50
C2
C3
C49
M1
A2
C39
C40
C34
C56
C57
C33
C32
A14
10.7MC
A15
10.7MC
C55
C30
C29
C31
A
A12
10.7MC
C35
C37
C27
C36
A4
455KC
B
C28
C5
C25
C38
C18
C43
C26
C16
C44
C21
C24
C23
C47
C48
C20
C19
C14
C8
C12
C6
C13
C41
A17
10.7MC
OSC.
C46
C42
C45
C22
C7
C17
M5
C9
C15
C10
C11

PROPERTY OF
L. F. [illegible]



PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SCOTT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	FM RF Amplifier	6CB6	6CB6	7CM	
V2	FM Converter	12AT7	12AT7	9A	
V3	AM RF Amplifier	6BA6	6BA6	7BK	
V4	AM Converter	6BE6	6BE6	7CH	
V5	1st. FM AM IF Amp.	6BA6	6BA6	7BK	
V6	2nd. FM IF Am.	6AU6	6AU6	7BK	
V7	Ratio Detector	6AL5	6AL5	6BT	
V8	AM Detector-1st. AF Amplifier	6SQ7	6SQ7	8Q	
V9	2nd. AF Amp.-Cathode Follower	6SN7GTA	6SN7GTA	8BD	
V10	Phase Inverter	6SN7GTA	6SN7GTA	8BD	
V11	Audio Output	6L6G	6L6G	7AC	
V12	Audio Output	6L6G	6L6G	7AC	
V13	Rectifier	5U4G	5U4G	5T	
V14	Phono Pre-amp.	6SC7	6SC7	8S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	SCOTT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲20	450		AFH4-14		UPT2222-45		FP444	TVL-4763	
B	■20	450								
C	20	450								
D	▲20	450								
C2	25	50		PRS50/25		BR255A		TC36	TVA-1306	
C3A	▲20	450		AFH4-14		UPT2222-45		FP444	TVL-4763	
B	▲20	450								
C	20	450								
D	■20	450								
C4	25	25		PRS25/25		BR252A		TC26	TVA-1205	Note 1
C5	4	50		PRS150/4		BR550		TC30	TVA-1303	
C6	390	500		1468-0004	D6-391	5W5T4	GP2K-391	MC243	1FM-34	
C7	1500			BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C8	1500			BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C9	1500			BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C10	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C11	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C12	15			SI15	D6-150		GP1K-150	UC-5415	5GA-Q15	
C13	68			SI68	D6-680	5W5Q7	GP1K-680	UC-5468	5GA-Q68	
C14	68			SI68	D6-680	5W5Q7	GP1K-680	UC-5468	5GA-Q68	
C15	5			SI5	TCZ-4.7		GP1K-050	UC-555	5GA-V5	
C16	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C17	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C18	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C19	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C20	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C21	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C22	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C23	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C24	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C25	100			SI100NP0	TCZ-100		NP0-333-101	ZT-531	5TCC-T1	
C26	10000			BPD-01	DD-103	TM5S1	821-01	UC-511	5HK-S1	
C27	10000			BPD-01	DD-103	TM5S1	821-01	UC-511	5HK-S1	
C28	10000			BPD-01	DD-103	TM5S1	821-01	UC-511	5HK-S1	
C29	10000			BPD-01	DD-103	TM5S1	821-01	UC-511	5HK-S1	Note 2
C30	10000			BPD-01	DD-103	TM5S1	821-01	UC-511	5HK-S1	
C31	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C32	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C33	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C34	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C35	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C36	390	500		1468-0004	D6-391	5W5T4	GP2K-391	MC243	1FM-34	
C37	390	500		1468-0004	D6-391	5W5T4	GP2K-391	MC243	1FM-34	
C38	1500			BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C39A	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
B	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C40	.1	400		P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C41	.02	200		P488-02	DF-203	PTE4S2		PT412	2TM-S2	
C42	.02	200		P488-02	DF-203	PTE4S2		PT412	2TM-S2	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: SCOTT PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.
T1	117VAC @ 1.23A	670VCT .150ADC	5VAC @ 2.8A	6.3VAC @ 5.8A	91Y5284		P-3173		R-42A

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SCOTT PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.	NOTES
T2	4KΩ CT	16Ω tap @ 6.8Ω	150Ω CT	.74Ω tap @ .4Ω	C-2699				TS-33A	

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: SCOTT PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1	12"	PM	6.8Ω	SRC 10051	ST-831 Mod. K-210S	12A6C0	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: SCOTT PART No.	REPLACEMENT DATA: MERIT PART No.	NOTES
L1	FM Ant. Coil	0Ω				
L2	Fil. Choke	0Ω				
L3	FM RF Choke	0Ω				
L4	FM RF Coil	0Ω				
L5	FM Osc. Coil	0Ω				
L6	FM RF Choke	1Ω				
L7	AM Loop Ant.	.2Ω	2.2Ω			
L8	AM Loop Ant. Loading Coil	.2Ω				
L9	AM RF Coil	130Ω	4Ω	20V4620	BC-383 *	
L10	AM Osc. Coil	3.6Ω		20V4621	BC-384 *	Tap @ 3.3Ω
L11	1st. FM IF	1.2Ω	1Ω	20V4623	FM-254 *	
L12	1st. AM IF	9.5Ω	9.5Ω	20Y5233		
L13	2nd. FM IF	1.2Ω	1Ω	20V4623	FM-254 *	
L14	2nd. AM IF	9.5Ω	9.5Ω	20Y5233		
L15	Fil. Choke	0Ω				
L16	Ratio Det.	1.6Ω	0Ω	20V4624	FM-252 *	Tertiary Winding - 0Ω

* Drill one new mtg. hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: SCOTT PART No. FUSE	SCOTT PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	3A 250V			312003	342001	AGC-3	HKP

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: SCOTT PART No.		NOTES
M2	Bayonet	6-8	.15	Brown			Type No #47
M3	Bayonet	6-8	.15	Brown			Type No #47
M4	Bayonet	6-8	.15	Brown			Type No #47

MISCELLANEOUS

ITEM No.	PART NAME	SCOTT PART No.	NOTES
M5	Switch		Function Selector
M6	3 Gang Var. Cap.		AM Sections (9-525MMF, 9-525MMF, 20-215MMF)
A17	Trimmer		FM Osc Adj (.5-5MMF)

PARTS LIST AND DESCRIPTIONS (Continued)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SCOTT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C43	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C44	.1	400		P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C45	.01	200		P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C46	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C47	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C48	.02	200		P488-02	DF-203	PTE4S2		PT412	2TM-S2	
C49	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C50	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C51	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C52	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C53	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C54	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C55	.02	200		P488-02	DF-203	PTE4S2		PT412	2TM-S2	
C56	.01	600		689ZGXY-01		PJ6S1		PT611	6TM-S1	
C57	.01	600		689ZGXY-01		PJ6S1		PT611	6TM-S1	

Note 1. Not used in all models.
Note 2. Some models use 5000MMF in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SCOTT PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	70V4585	Q13-133	AG-60-Z	B-60-S	U-48	Bass
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A
R2A	500KΩ	½	70V4584	Q11-133	AG-58-S	B-59	U-50	Treble
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R2A
R3A	500KΩ	½	70V4583	Q13-133	AG-60-Z	B-60	U-48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A

RESISTORS

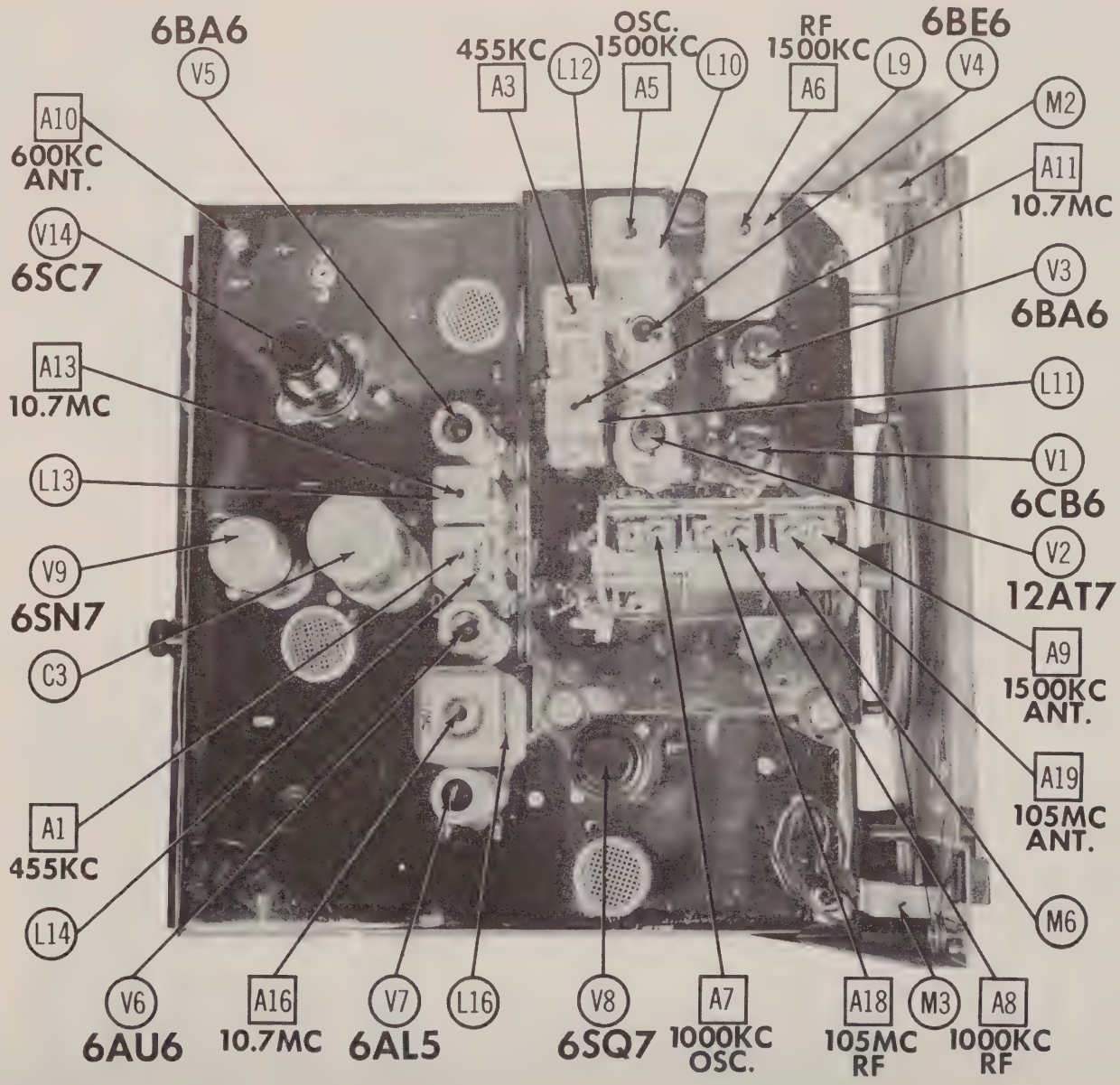
ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SCOTT PART No.	IRC PART No.	NOTES	ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SCOTT PART No.	IRC PART No.	NOTES
R4	100KΩ	½		BTS-100K		R37	22KΩ	½		BTS-22K	
R5	180Ω	½		BTS-180		R38	47KΩ	½		BTS-47K	
R6	33KΩ	½		BTS-33K		R39	4.7Meg	½		BTS-4.7Meg	
R7	1000Ω	½		BTS-1000		R40	100KΩ	½		BTS-100K	
R8	4.7Meg	½		BTS-4.7Meg		R41	47KΩ	½		BTS -47K	
R9	47KΩ	1		BTA-47K		R42	22KΩ	½		BTS-22K	
R10	22KΩ	½		BTS-22K		R43	100KΩ	½		BTS-100K	
R11	4700Ω	½		BTS-4700		R44	2200Ω	½		BTS-2200	
R12	1 Meg	½		BTS-1 Meg		R45	56Ω	½			
R13	120Ω	½		BTS-120		R46	560Ω	½		BTS-560	
R14	10KΩ	½		BTS-10K		R47	47KΩ	½		BTS-47K	
R15	1000Ω	½		BTS-1000		R48	1500Ω	½		BTS-1500	
R16	100KΩ	½		BTS-100K		R49	10KΩ	½		BTS-10K	
R17	22KΩ	½		BTS-22K		R50	470KΩ	½		BTS-470K	Note 3
R18	4700Ω	1		BTA-4700		R51	1000Ω	½		BTS-1000	
R19	1000Ω	½		BTS-1000		R52	1250Ω	5		1 3/4A-1250	
R20	100KΩ	½		BTS-100K		R53	6000Ω	7		1 3/4A-6000	
R21	33KΩ	½		BTS-33K	Note 1	R54	220KΩ	½		BTS-220K	
R22	68Ω	½				R55	680Ω	½		BTS-680	
R23	33KΩ	½		BTS-33K		R56	10KΩ	1		BTA-10K	
R24	1000Ω	½		BTS-1000		R57	10KΩ	1		BTA-10K	
R25	33KΩ	½		BTS-33K		R58	470KΩ	½		BTS-470K	
R26	120Ω	½		BTS-120		R59	180Ω	5		1 3/4A-200	
R27	10KΩ	½		BTS-10K		R60	470KΩ	½		BTS-470K	
R28	1000Ω	½		BTS-1000		R61	1250Ω	5		1 3/4A-1250	
R29	47KΩ	½		BTS-47K		R62	1100Ω	5		1 3/4A-1100	
R30	470KΩ	½		BTS-470K		R63	300Ω	5		1 3/4A-300	
R31	1 Meg	½		BTS-1 Meg		R64	6800Ω	½		BTS-6800	
R32	6.8Meg	½		BTS-6.8Meg	Note 2	R65	68KΩ	½		BTS-68K	
R33	6.8Meg	½		BTS-6.8Meg	Note 1	R66	47KΩ	½		BTS-47K	
R34	6.8Meg	½		BTS-6.8Meg	Note 1	R67	3.3Meg	½		BTS-3.3Meg	
R35	120Ω	½		BTS-120		R68	33KΩ	½		BTS-33K	
R36	47KΩ	½		BTS-47K		R69	220KΩ	½		BTS-220K	
						R70	27KΩ	½		BTS-27K	

Note 1 Not used in all models.
Note 2 Some models use a 20Meg resistor in this application.
Note 3 Some models use a 220KΩ resostor in this application.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	1.6Meg	180Ω	.1Ω	0Ω	†4.8KΩ	†37KΩ	0Ω		
V 2	12AT7	†51KΩ	4.7Meg	0Ω	.1Ω	.1Ω	†8.5KΩ	22KΩ	0Ω	0Ω
V 3	6BA6	■2.5Meg	0Ω	0Ω	.1Ω	■†4.8KΩ	■†14KΩ	120Ω		
V 4	6BE6	22KΩ	.3Ω	0Ω	.1Ω	■†4.8KΩ	■†8.5KΩ	■1.6Meg		
V 5	6BA6	1.6Meg	0Ω	.1Ω	0Ω	†4.8KΩ	†37KΩ	68Ω		
V 6	6AU6	1Ω	0Ω	.1Ω	0Ω	†4.8KΩ	†13KΩ	120Ω		
V 7	6AL5	INF	INF	.1Ω	0Ω	0Ω	0Ω	22K		
V 8	6SQ7	0Ω	4.7Meg	0Ω KΩ	585KΩ	1.5Meg	†100KΩ	.1Ω	0Ω	
V 9	6SN7GT	2.2KΩ	†48KΩ	2.2KΩ	480KΩ	†2.3KΩ	11KΩ	.1Ω	0Ω	
V 10	6SN7GT	230KΩ	†11KΩ	10.6KΩ	230KΩ	†11KΩ	10.6KΩ	.1Ω	0Ω	
V 11	6L6G	0Ω	.1Ω	†375Ω	†1.3KΩ	470KΩ	10KΩ	0Ω	180Ω	
V 12	6L6G	0Ω	.1Ω	†375Ω	†1.3KΩ	470KΩ	10KΩ	0Ω	180Ω	
V 13	5U4G	INF	80KΩ	INF	59Ω	INF	58Ω	INF	80KΩ	
V 14	6SC7	0Ω	†80KΩ	3.3Meg	6.8KΩ	†15KΩ	0Ω	0Ω	.1Ω	

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS NOTED
† MEASURED FROM PIN 8 OF V13
■ MEASURED IN "AM" POSITION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V5
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A3
L12
OSC.
1500KC
A5
L10
RF
1500KC
A6
L9
6BE6
V4
M2
A10
600KC
ANT.
A11
10.7MC
V14
6SC7
V3
6BA6
A13
10.7MC
L11
L13
V1
6CB6
V9
6SN7
V2
12AT7
C3
A9
1500KC
ANT.
A19
105MC
ANT.
A1
455KC
M6
L14
V6
6AU6
A16
10.7MC
V7
6AL5
L16
V8
6SQ7
A7
1000KC
OSC.
A18
105MC
RF
M3
A8
1000KC
RF

PROPERTY OF
L. F. CLANKENSHIP
2024 MEADE ST.
DENVER, COLORADO

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn tuning gang fully open and set pointer between the zeros in 100 on the 0 to 100 scale of the dial.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to stator lug of middle AM section of tuning gang Low side to chassis.	455KC (400∿ Mod.)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	High side to pin 1 (grid) of 6BA6 (V3) Low side to chassis.	1500 KC	"	1500 KC	"	A5, A6	Adjust in order given for maximum output.
3.	"	"	1000 KC	"	1000KC	"	A7, A8	Adjust in order given for maximum output. Repeat steps 2 and 3 until no change is noted.
4.		Loop	1500 KC	"	1500 KC	"	A9	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
5.		"	600 KC	"	600 KC	"	A10	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from Point (A) to chassis. The junction of these two resistors is alignment Point (C) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	.001MFD	High side to pin 2 (grid) of 12AT7 (V2) Low side to chassis.	10.7MC (Unmod)	FM	Tuning gang fully open	DC probe to point (A). Common to chassis.	A11, A12 A13, A14 A15	Adjust for maximum deflection.
7.	"	"	"	"	"	DC probe to point (B). Common to point (C).	A16	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
6.	.001MFD	High side to pin 2 (grid) of 12AT7 (V2) Low side to chassis.	10.7MC (450KC Swp)	FM	Tuning gang fully open.	Vert amp. to point (A) Low side to chassis.	A11, A12 A13, A14 A15	Disconnect stabilizer capacitor C5. Adjust for curve of maximum amplitude and symmetry as in fig. 1.
7.	"	"	"	"	"	Vert Amp to point (B). Low side to chassis.	A16	Reconnect capacitor C5. Adjust so that 10.7MC occurs at center of crossover lines as in fig. 2. SLIGHTLY retouch A15 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	.001MFD	High side to pin 2 (grid) of 12AT7 (V2) Low side to chassis.	107MC (Unmod)	FM	107MC	DC probe to point (A). Common to chassis.	A17	Adjust for maximum deflection.
9.	Two 120Ω Carbon Resistors	Across FM antenna terminals with 120Ω in each lead.	105MC	"	Tune to 105MC signal.	"	A18, A19	"

FIG. 1

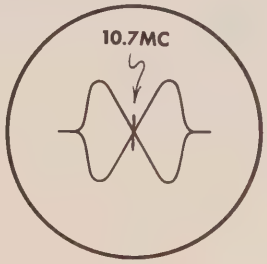
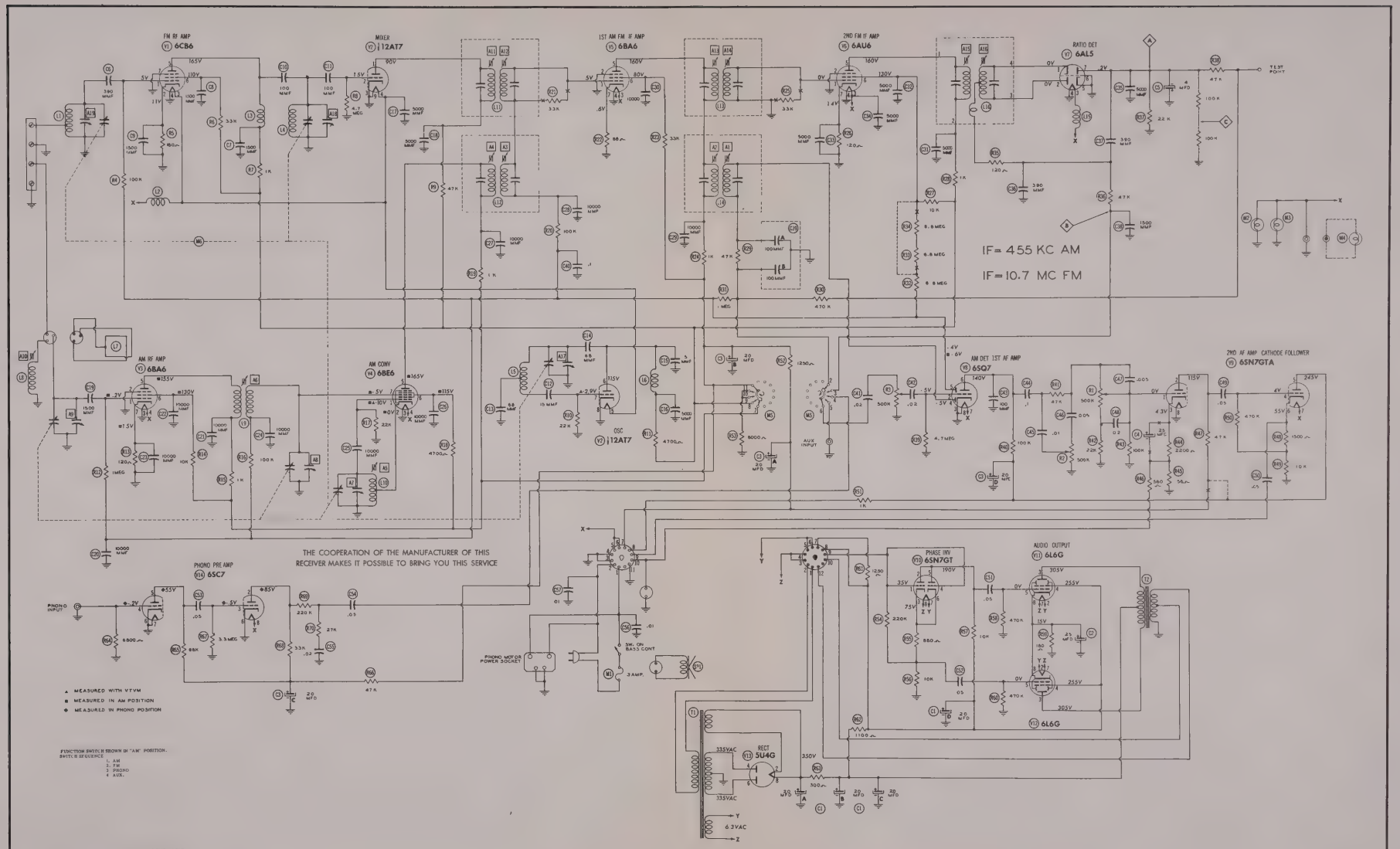


FIG. 2



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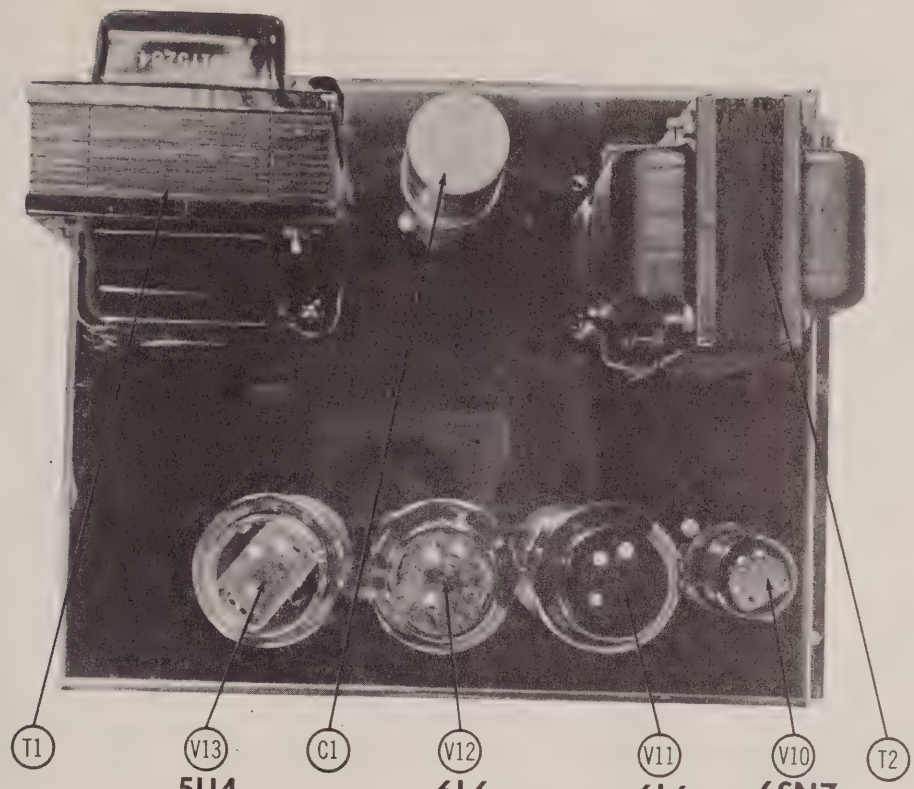
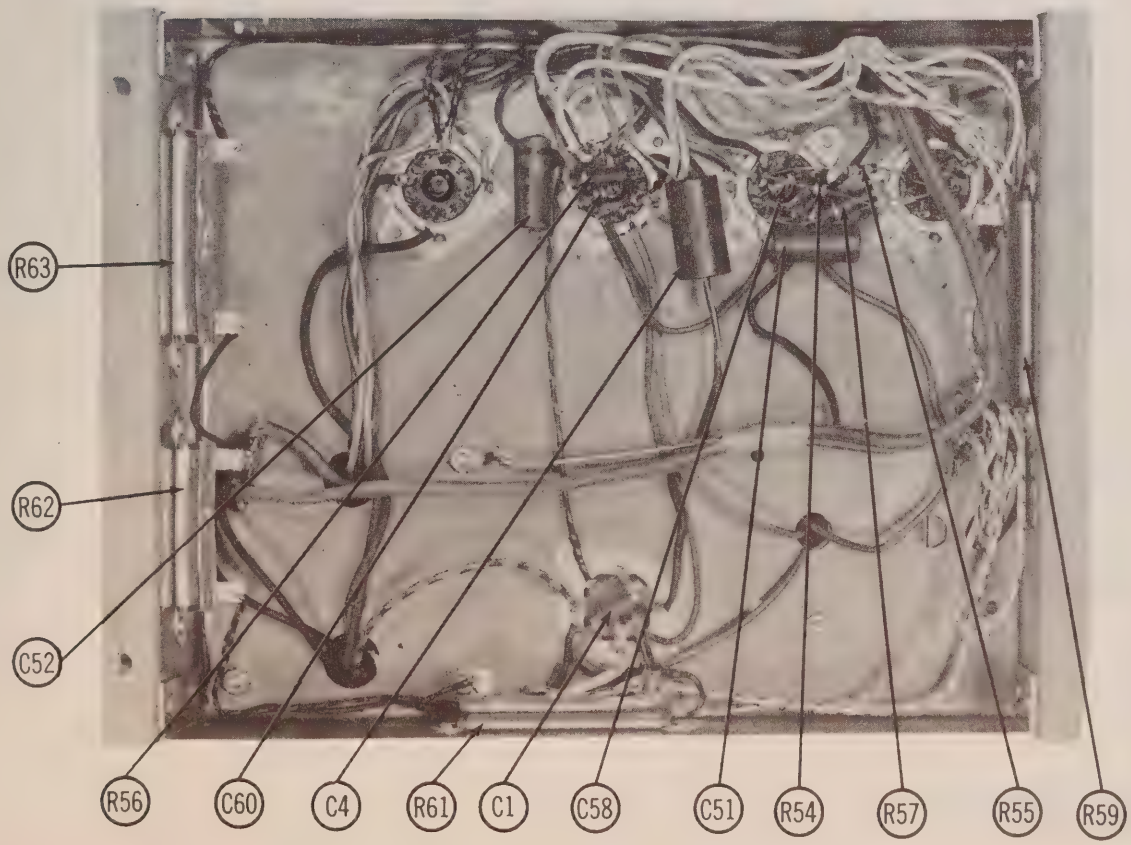
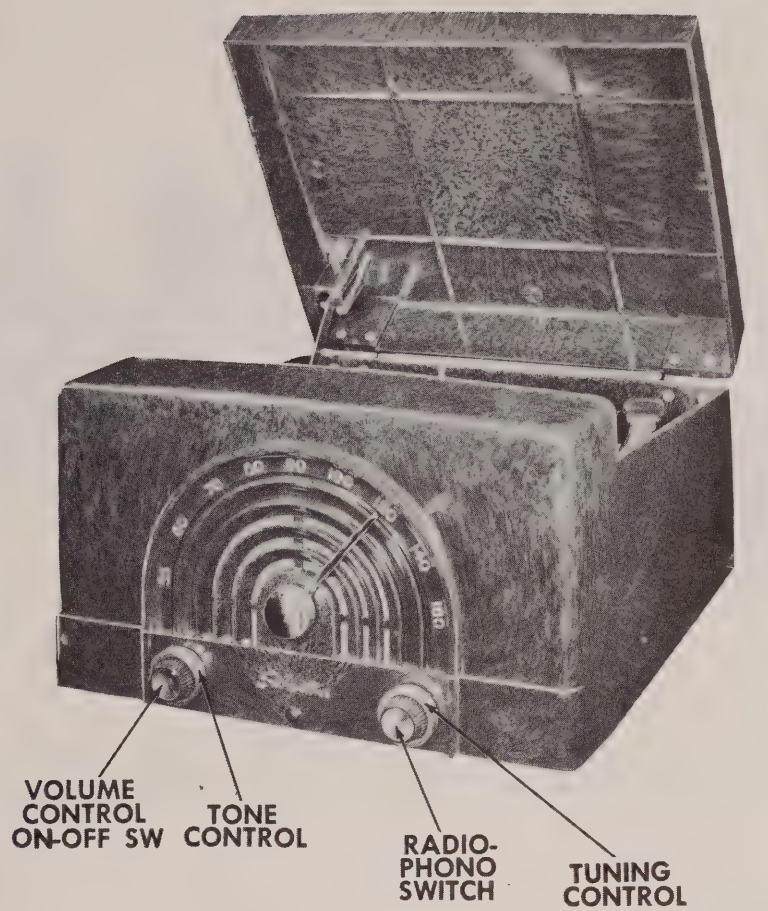

T1
V13
5U4
C1
V12
6L6
V11
6L6
V10
6SN7
T2


R63
R62
C52
R56
C60
C4
R61
C1
C58
C51
R54
R57
R55
R59

SILVERTONE MODELS 1040,1045 (Ch. 528.194)

SILVERTONE MODELS 1040, 1045 (Ch. 528.194)



SILVERTONE MODELS 1040,1045 (Ch. 528.194)

TRADE NAME	Silvertone Models 1040, 1045 (Ch. 528.194)
SUPPLIER	Sears Roebuck & Co., 925 S. Homan, Chicago, Ill.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver and 3 Speed Automatic Record Changer
TUBES (FIVE)	Types 12SA7 Conv., 12SK7 IF Amp., 12SQ7 Det-AVC-AF Amp., 50L6GT Audio Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
RATING	.250 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 8 (grid) of 12SA7 (V1) Low side to B-.	455KC (400~Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1630KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into ploop of receiver. Adjust for maximum output.

Replace chassis in cabinet, turn tuning gang fully closed and set pointer parallel to base of cabinet at low frequency end of dial.

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT-SEE SIMILAR V-M MODEL 950-PHOTOFACT SET 107, FOLDER 13 OR RECORD CHANGER MANUAL CM-3.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		SILVERTONE PART No.	STANDARD REPLACEMENT		
V1	Converter	12SA7	12SA7	8R	
V2	IF Amplifier	12SK7	12SK7	8H	
V3	Det-AVC-AF Amp	12SQ7	12SQ7	8Q	
V4	Audio Output	50L6GT	50L6Gt	7AC	
V5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	50	150	T18-304	PRS150/50-30		EDL5315		TCD497	TVA-2450	Red
B	30	150								Yellow
C2	.05	400	T16-197	P488-05	DF-503	PTE4S5		PT514	4TM-S5	
C3	47		T15-229	SI47	D6-470	5W5Q5	GP1K-470	UC-5447	5GA-Q47	
C4	.05	400	T16-189	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C5	.02	400	T16-150	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C6A	220		T17-104	SI220	D6-221	5W5T25	GP2K-221	UC-5322	34C3	
B	.002			P688-002	D6-202	PTE6D2	GP2-333-202	PT622		
C	220			SI220	D6-221	5W5T25	GP2K-221	UC-5322		
D	.005			P688-005	D6-502	PTE6D5	GP2-333-502	PT625		
C7	.005	600	T16-190	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C8	.005	600	T16-190	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C9	.05	400	T16-189	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C10	.05	400	T16-189	P488-05	DF-503	PTE4S5		PT415	4TM-S5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	T24-194				UF55L	Tone-Panel
B	1Meg						UR16A	Volume-Rear
C	Switch						US-26	Attach to R1B

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES	ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SILVERTONE PART No.	IRC PART No.			OHMS	WATT	SILVERTONE PART No.	IRC PART No.	
R2	22KΩ	½	R60-659	BTS-22K		R7	220KΩ	½	T60-667	BTS-220K	
R3	2.2Meg	½	T60-726	BTS-2.2Meg		R8	470KΩ	½	T60-731	BTS-470K	
R4	47KΩ	½	T60-730	BTS-47K		R9	180Ω	½	T60-774	BTS-180	
R5	470KΩ	½	T60-731	BTS-470K		R10	1000Ω	1	T60-732	BTA-1000	
R6	10Meg	½	T60-728	BTS-10Meg		R11	27Ω	½	T60-690		

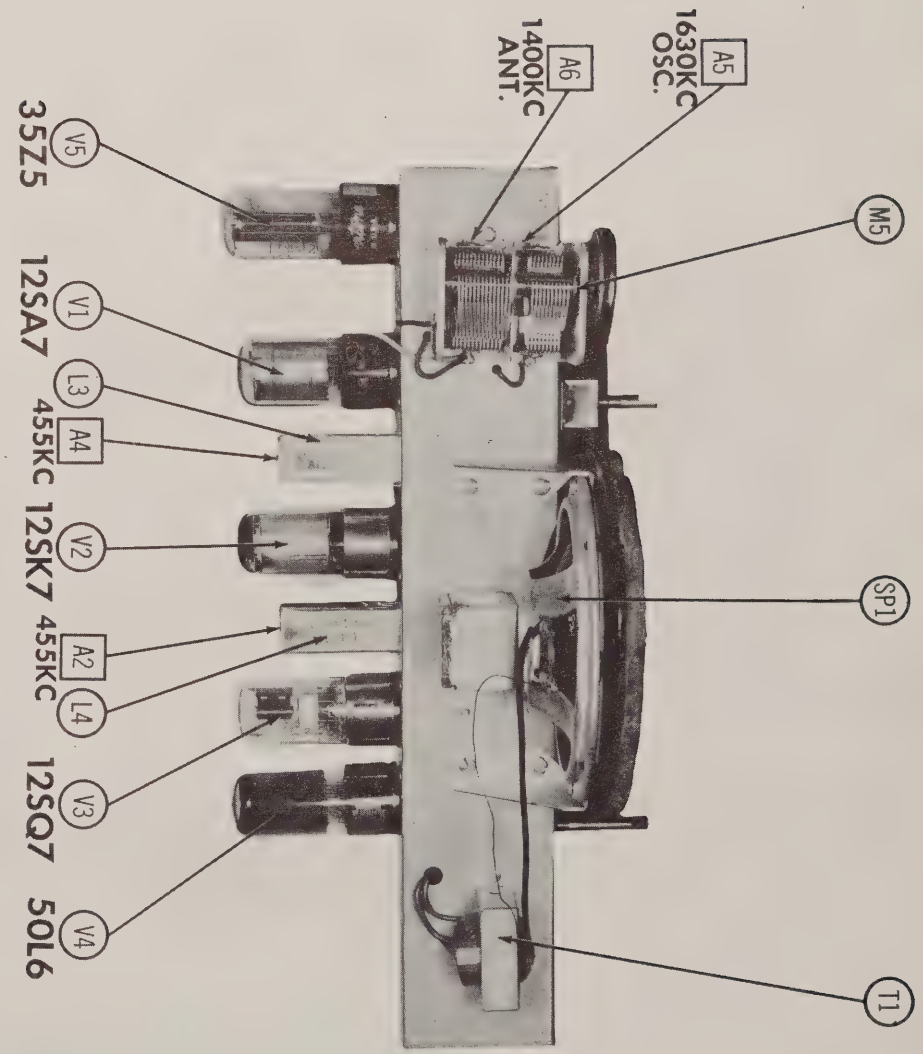
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	2.46KΩ	2.9Ω	227Ω Tap @ 215Ω	.58Ω	80-268			RO-3		

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5"	PM	2.9Ω	79-391	ST-740 Mod. P5-X	5A1	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SILVERTONE PART No.	REPLACEMENT DATA MERIT PART No.	NOTES
L1	Loop Ant	1.4Ω		T82-69		
L2	Osc. Coil	1.4Ω	7.5Ω	T10-572		
L3	Input IF	20Ω	20Ω	T10-508	BC-352	
L4	Output IF	22Ω	22Ω	T10-479	BC-353	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA SILVERTONE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M1		GC-AG-J	G-AG	WC36B	A56U	43	0-2 or 5-2	

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

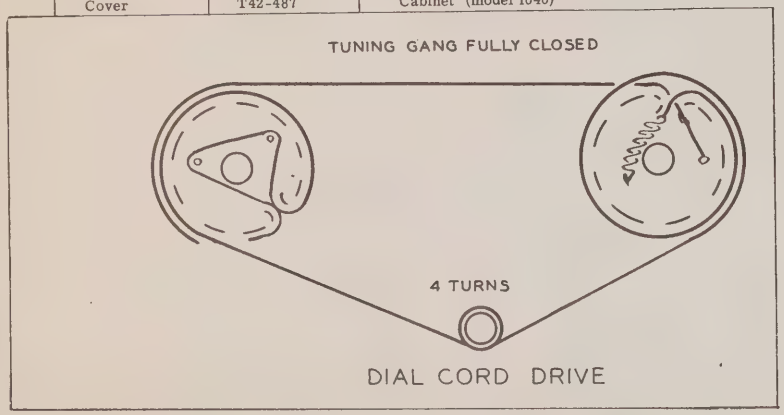
ITEM No.	REPLACEMENT DATA SILVERTONE PART No.	WALCO PART No.	JENSEN PART No.	REMARKS
M2		W-3AGS or W-3AGA	S-642 or S-652	

DIAL LIGHTS

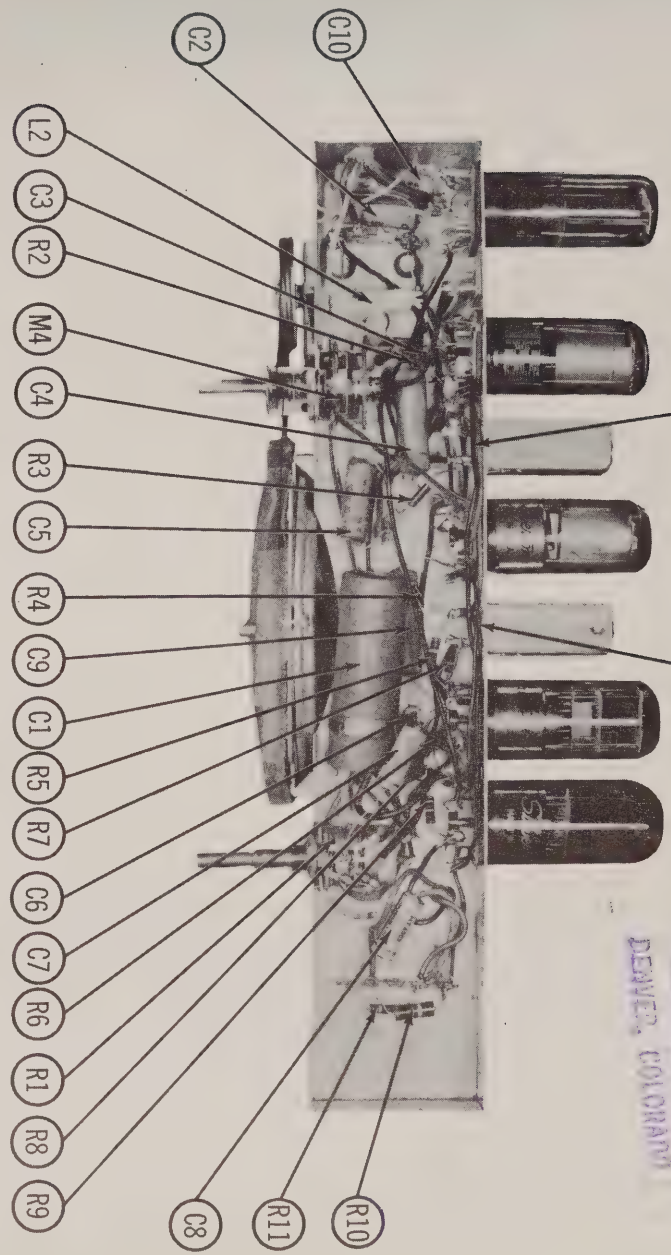
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA SILVERTONE PART No.		NOTES
M3	Bayonet	6-8	.15	Brown	T89-7		Type No #47

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M4	Switch	T69-188	Radio-Phono
M5	2 Gang Var. Cap	T19-212	(19-469MMF, 29-205MMF)
	Dial Pointer	T58-83	
	Knob	T52-320	Tuning (Model 1040)
	Knob	T52-341	Tuning & Tone (Model 1045)
	Knob	T52-321	On/Off Volume, Phono-Radio (Model 1040)
	Knob	T52-342	On/Off Volume, Phono-Radio (Model 1045)
	Knob	T52-344	Tone (Model 1040)
	Dial Scale Plate	T67-564	Model 1045
	Cabinet	T42-506	Model 1045
	Cabinet	T42-486	Less Cover (Model 1040)
	Cover	T42-487	Cabinet (model 1040)



CHASSIS—BOTTOM VIEW



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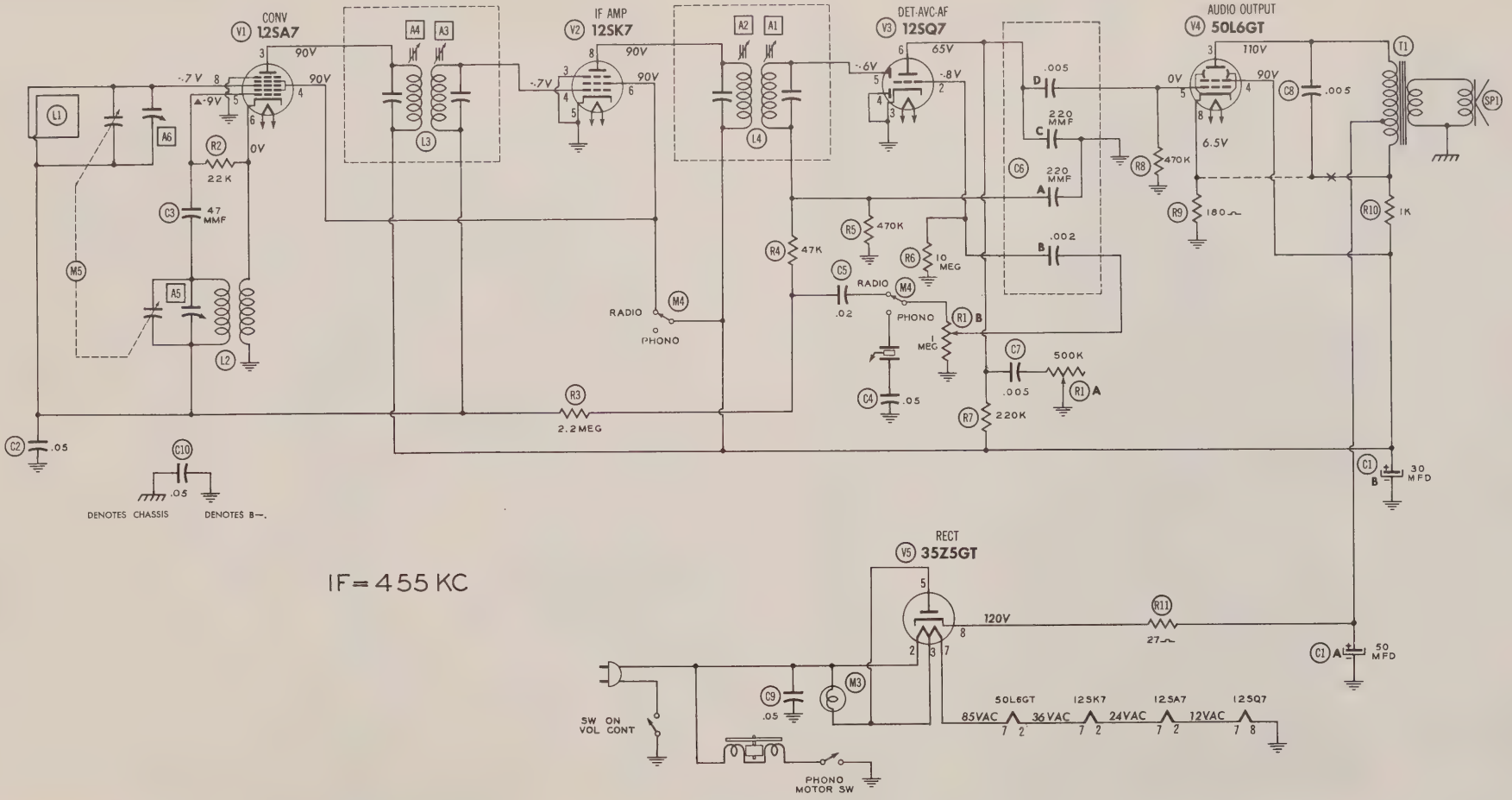

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7	¶0Ω	12Ω	†1KΩ	†1KΩ	22KΩ	1.4Ω	24Ω	2.7Meg
V 2	12SK7	¶0Ω	24Ω	0Ω	2.7Meg	0Ω	†1KΩ	36Ω	†1KΩ
V 3	12SQ7	¶0Ω	10Meg	0Ω	0Ω	470KΩ	†220KΩ	12Ω	0Ω
V 4	50L6GT	INF	36Ω	†242Ω	†1KΩ	470KΩ	0Ω	86Ω	180Ω
V 5	35Z5GT	INF	121Ω	103Ω	INF	103Ω	INF	86Ω	50KΩ

ALL MEASUREMENTS TAKEN IN RADIO POSITION
† MEASURED FROM PIN 8 OF V5
▲ TAKEN WITH VACUUM VOLTMETER
¶ MEASURED FROM CHASSIS

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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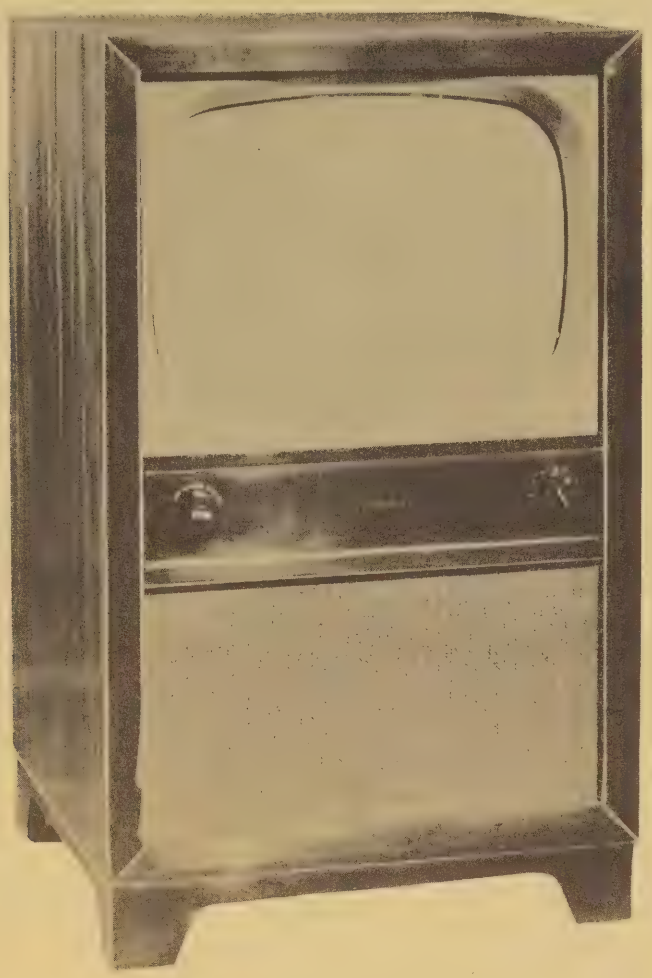

MODEL 1184-20

SILVERTONE
MODEL 1184-20 (Ch. 528.631, -1)

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DATE 10-52 SET 181 FOLDER 13

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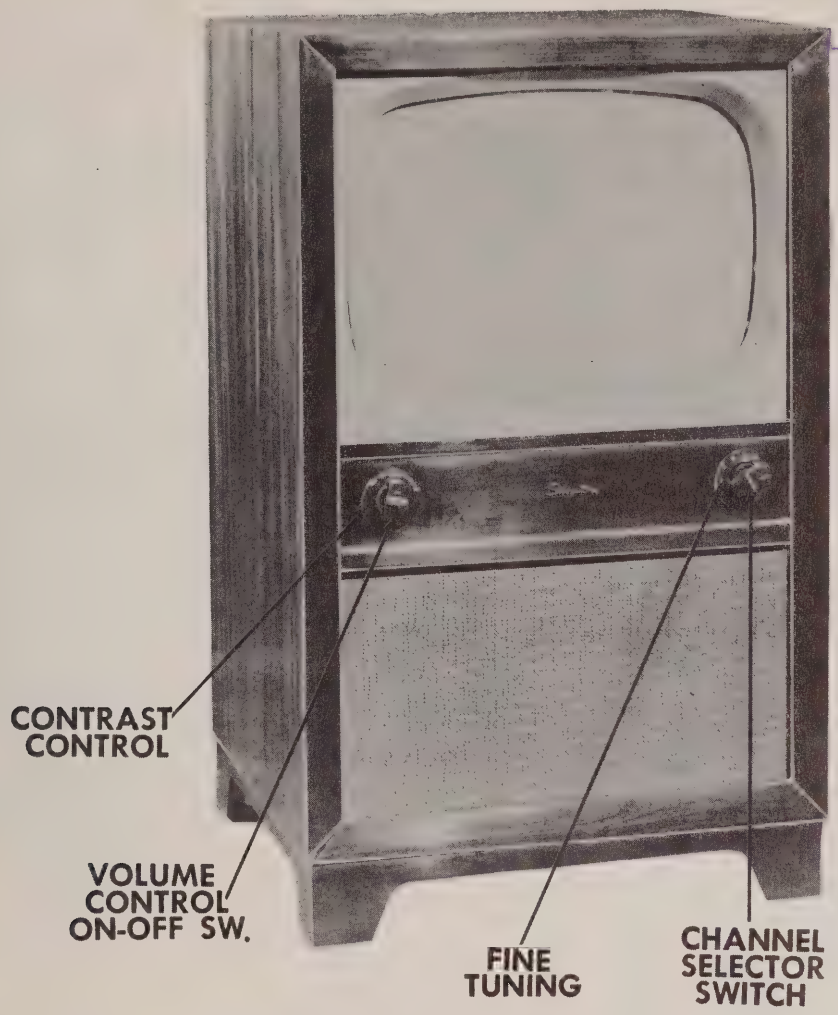

SILVERTONE
MODEL 1184-20 (Ch. 528.631, -1)

TRADE NAME	Silvertone Models 1184-20 (Ch. 528.631, -1)
SUPPLIER	Sears Roebuck & Co., 925 S. Homan, Chicago, Ill.
TYPE SET	Television Receiver
TUBES	Nineteen

POWER SUPPLY 110-120 Volts AC-60 Cycle RATING 1.8 Amp. @ 117 Volts AC
TUNING RANGE—Channels 2 thru 13

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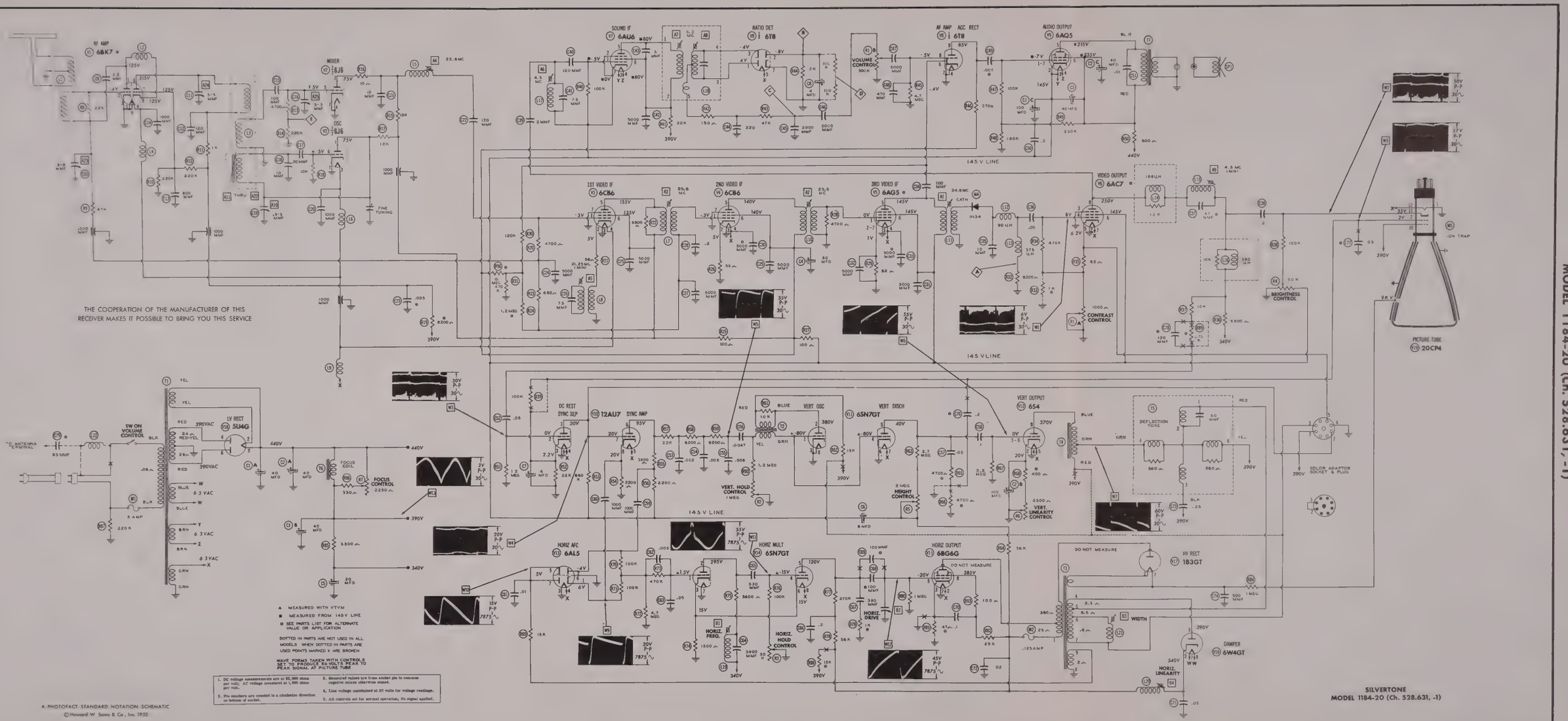
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SILVERTONE
MODEL 1184-20 (Ch. 528.631, -1)
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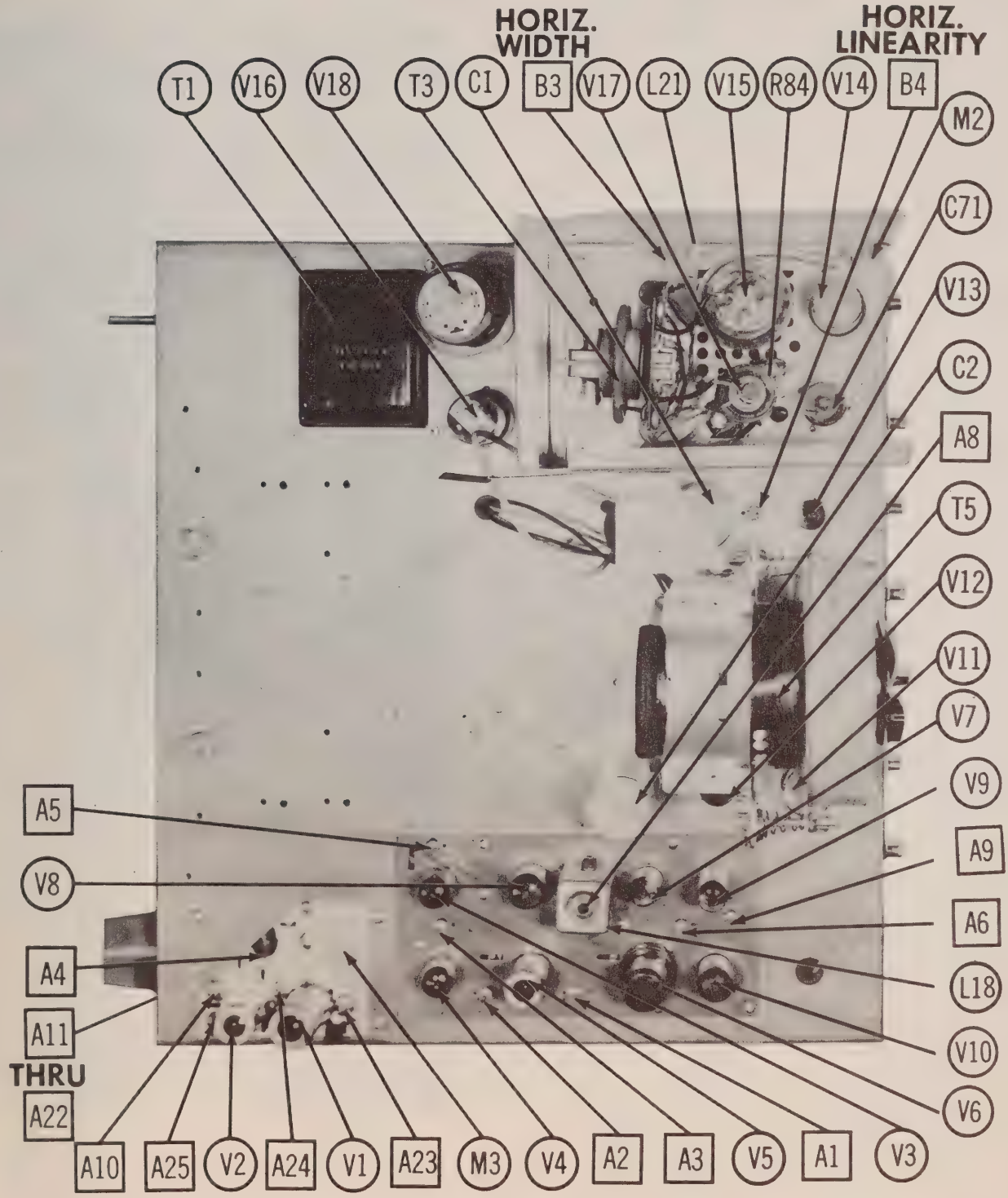
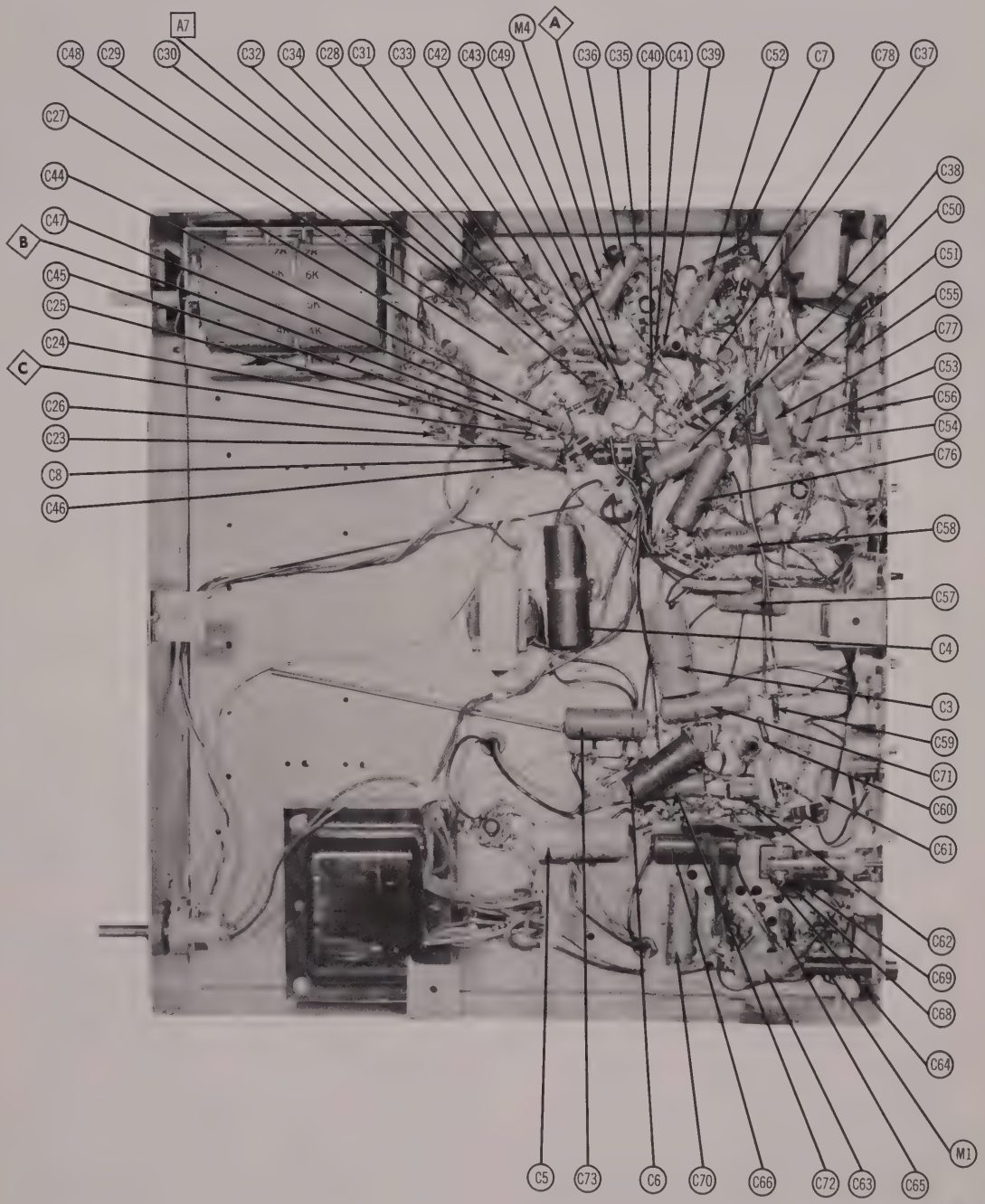
PAGE 2



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW- CAPACITOR AND ALIGNMENT IDENTIFICATION

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TUBE PLACEMENT CHART

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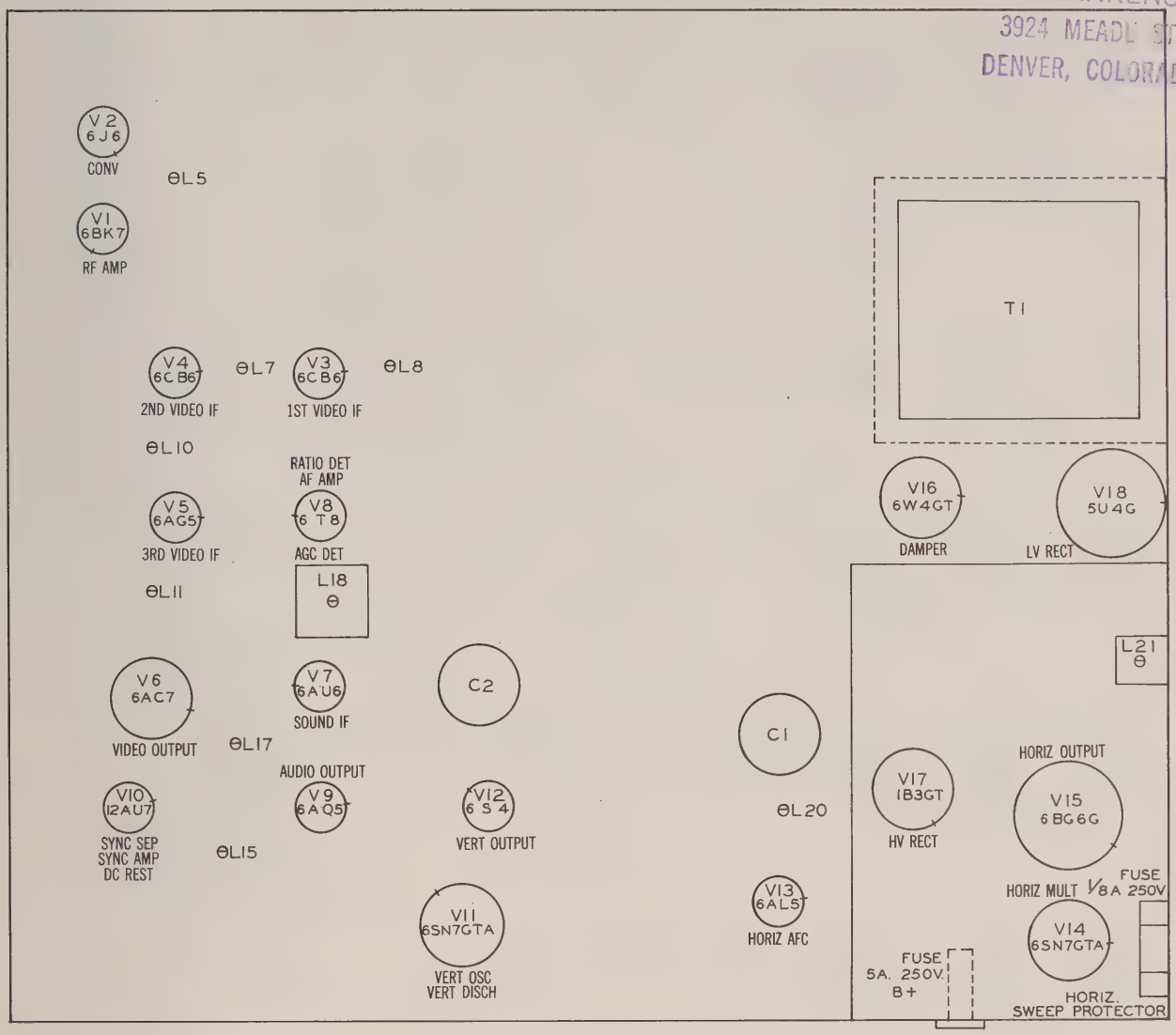


TOP VIEW

SILVERTONE
MODEL 1184-20 (Ch. 528.631, -1)

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube

POWER SUPPLY FAILURE
No Pic., No Sound, Has Raster- V2, V3, V4, V5, V6, V9
No Pic., No Sound, Has Snow-V1, V2, V3
No Pic., Has Sound, Has Raster-V6, V10, V19
Has Pic., No Sound-V7. V8, V9
Overloaded Picture-V8

SYNC FAILURE
No Vert. Sync-V10, V11
No Horiz. Sync-V10, V13, V14
No Vert. or Horiz. Sync-V10

SWEEP FAILURE
No Raster. Has Sound-V14, V15, V16, V17, V19, Fuse(M1)
No Vert. Deflection-V12
Poor Vert. Linearity or Foldover-V11, V12
Poor Horiz. Linearity or Foldover-V14, V15, V16
Narrow Picture-V14, V15, V16, V17, V18
Vert. Off Freq.-V10, V11
Horiz. Off Freq.-V10, V13, V14

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal multivibrator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, V2, and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, V2. Low side to chassis.	24.6MC (Unmod.)	Any	DC probe to point ◇A◇ Common to Chassis.	A1	Adjust for maximum deflection.
2.	"	"	23.3MC	"	"	A2	"
3.	"	"	25.6MC	"	"	A3	"
4.	"	"	22.8MC	"	"	A4	"
5.	"	"	21.25MC	"	"	A5	Adjust for MINIMUM deflection

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to an ungrounded tube shield floating over dummy converter tube V2. Low side to chassis.	24MC (10MC Swp.)	21.25M C 25.75MC	Any	Vert. amp. to point ◇A◇. Low side to chassis.		Check for response curve similar to fig. 1 If necessary retouch A1 thru A4 for proper response.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point ◇B◇ to chassis. the junction of these two resistors is alignment point ◇D◇ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.001MFD	High side to pin 4 (grid) of 6AC7 (V6). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point ◇B◇. Common to chassis.	A6, A7	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to point ◇C◇ Common to point ◇D◇.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.001MFD	High side to pin 4 (grid) of 6AC7 (V6). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. to point ◇B◇. Low side to chassis.	A6, A7	Disconnect stabilizer C8. Adjust for curve of maximum amplitude and symmetry as per fig. 2.
8.	"	"	"	"	"	Vert. amp. to point ◇C◇. Low side to chassis.	A8	Reconnect capacitor C8. Adjust so that 4.5MC occurs at center of crossover lines as in fig. 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.001MFD	High side to pin 4 (grid) of 6AC7 (V6). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe thru detector (fig.4) to pin 11 of picture tube.	A9	Adjust for MINIMUM deflection.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A10. It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct any individual channel. If adjustment of A10 will not bring all channels well within the range of the fine tuning control it will be necessary to adjust the channel strip adjustment for each channel that is off frequency.
The channel adjustment screws are reached through a hole just to the right of the channel switch shaft.
The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. to point ◇A◇. Low side to chassis.	A11	Adjust to place video marker at 50% of response on the high frequency side of response curve as per fig. 5.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A12	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A13	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A14	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A15	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A16	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A17	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A18	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A19	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A20	
			63MC (10MC Swp)	61.25M 65.75MC	3		A21	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A22	

ALIGNMENT INSTRUCTIONS (CONT.)

RF MIXER ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. amp. thru 47KΩ to point (E). Low side to chassis.	A23, A24, A25	Adjust for curve similar to fig. 6 with markers above 90%.
12.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response curve similar to fig. 6. with markers as shown. If markers fall below 70% on any channel make compromise adjustments of A23, A24, and A25 with channel switch set to that channel, then check all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	4			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

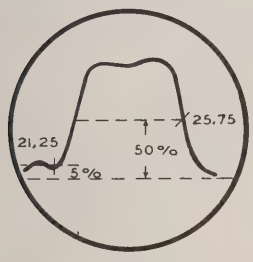


FIG. 1

FIG. 2

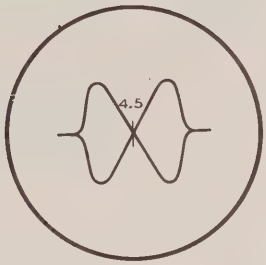


FIG. 3

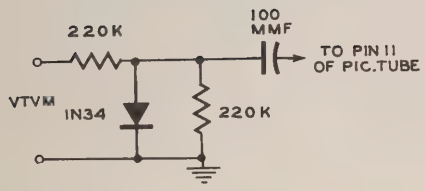


FIG. 4

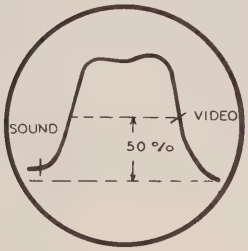


FIG. 5

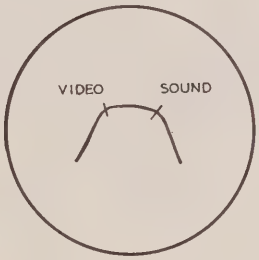
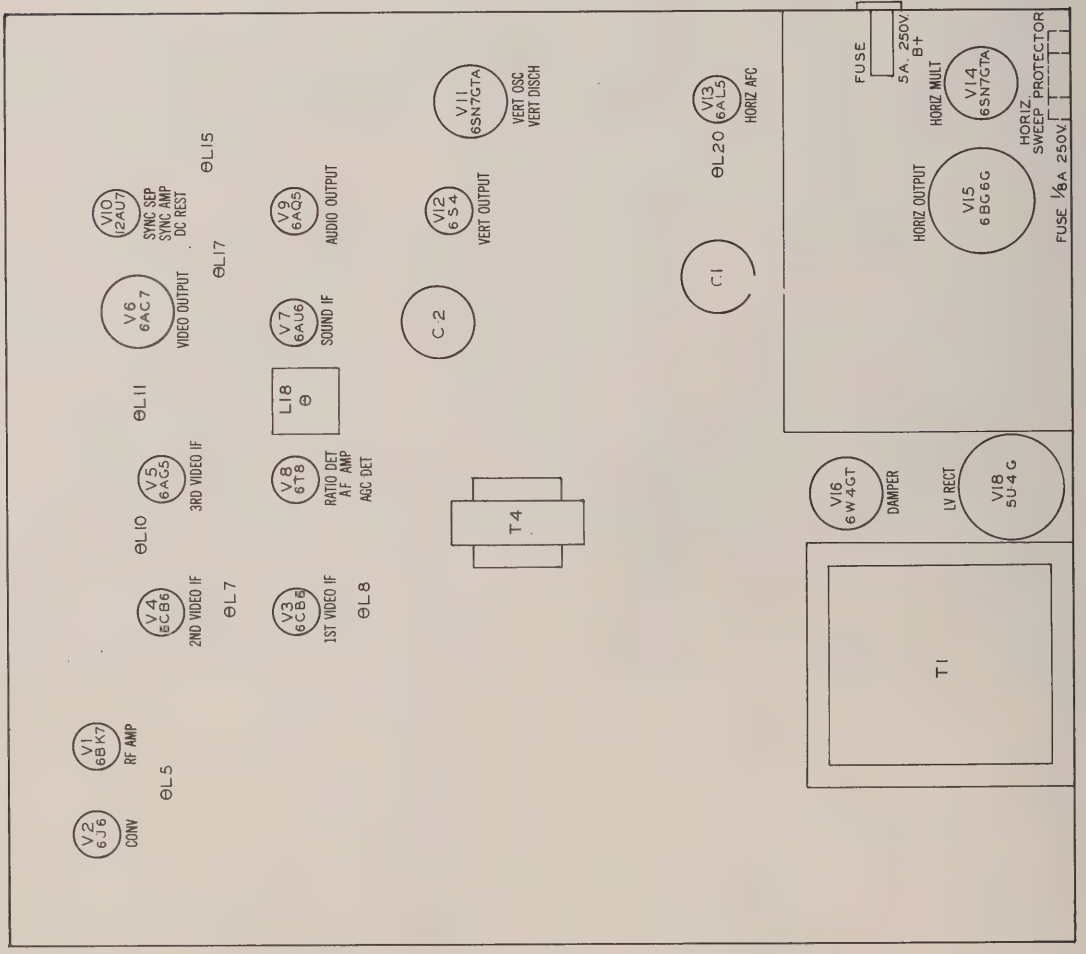


FIG. 6

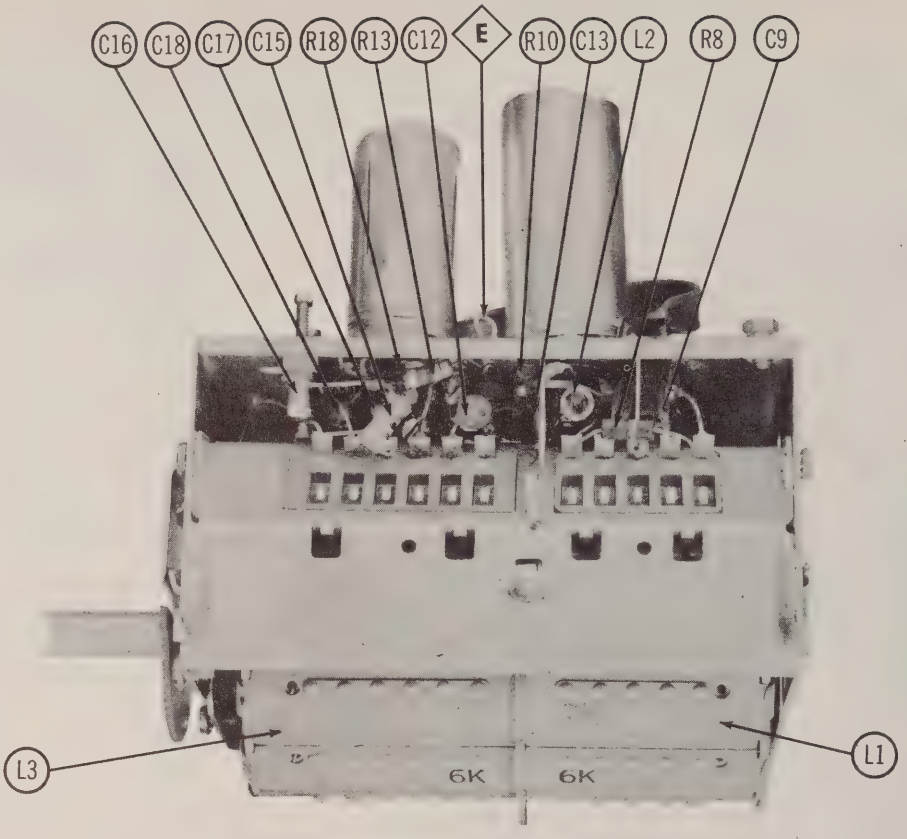
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BK7	INF	1.7Meg	0Ω	.1Ω	0Ω	†9.5KΩ	110KΩ	INF	0Ω
V 2	6J6	■10KΩ	■15KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	1.6Meg	56Ω	0Ω	.1Ω	■200Ω	■200Ω	0Ω		
V 4	6CB6	1.6Meg	56Ω	0Ω	.1Ω	■100Ω	■100Ω	0Ω		
V 5	6AG5	.2Ω	82Ω	0Ω	.1Ω	■.2Ω	■0Ω	82Ω		
V 6	6AC7	0Ω	0Ω	0Ω	470KΩ	480Ω	■0Ω	.1Ω	†10KΩ	
V 7	6AU6	■100KΩ	■0Ω	■0Ω	■.1Ω	†22KΩ	†22KΩ	■0Ω		
V 8	6T8	INF	12KΩ	INF	0Ω	.1Ω	590KΩ	0Ω	4.7Meg	■270KΩ
V 9	6AQ5	270KΩ	38KΩ	■0Ω	■.1Ω	†1.2KΩ	†800Ω	270KΩ		
V 10	12AU7	■680KΩ	1.2Meg	22KΩ	.1Ω	.1Ω	■6.1KΩ	■680KΩ	2.2KΩ	0Ω
V 11	6SN7GTA	1.8Meg	†15KΩ	0Ω	1.8Meg	#3.2Meg	0Ω	.1Ω	0Ω	
V 12	6S4	INF	2KΩ	2.2Meg	0Ω	.1Ω	2.2Meg	INF	INF	†1.3KΩ
V 13	6AL5	4.8Meg	4.8Meg	0Ω	.1Ω	15KΩ	0Ω	15KΩ		
V 14	6SN7GTA	5.1Meg	†9KΩ	1.5KΩ	130KΩ	#326KΩ	1.5KΩ	0Ω	.1Ω	
V 15	6BG6G	#25KΩ	.1Ω	0Ω	#25KΩ	1Meg	INF	0Ω	#25KΩ	Top Cap #62Ω
V 16	6W4GT	INF	INF	70KΩ	†300Ω	†310Ω	INF	¶0Ω	¶.1Ω	
V 17	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								Top Cap #422Ω
V 18	5U4G	INF	60KΩ	INF	24Ω	INF	26Ω	INF	60KΩ	
V 19	20CP4	0Ω	120KΩ	Pin 10 †300Ω	Pin 11 110KΩ	Pin 12 .1Ω				

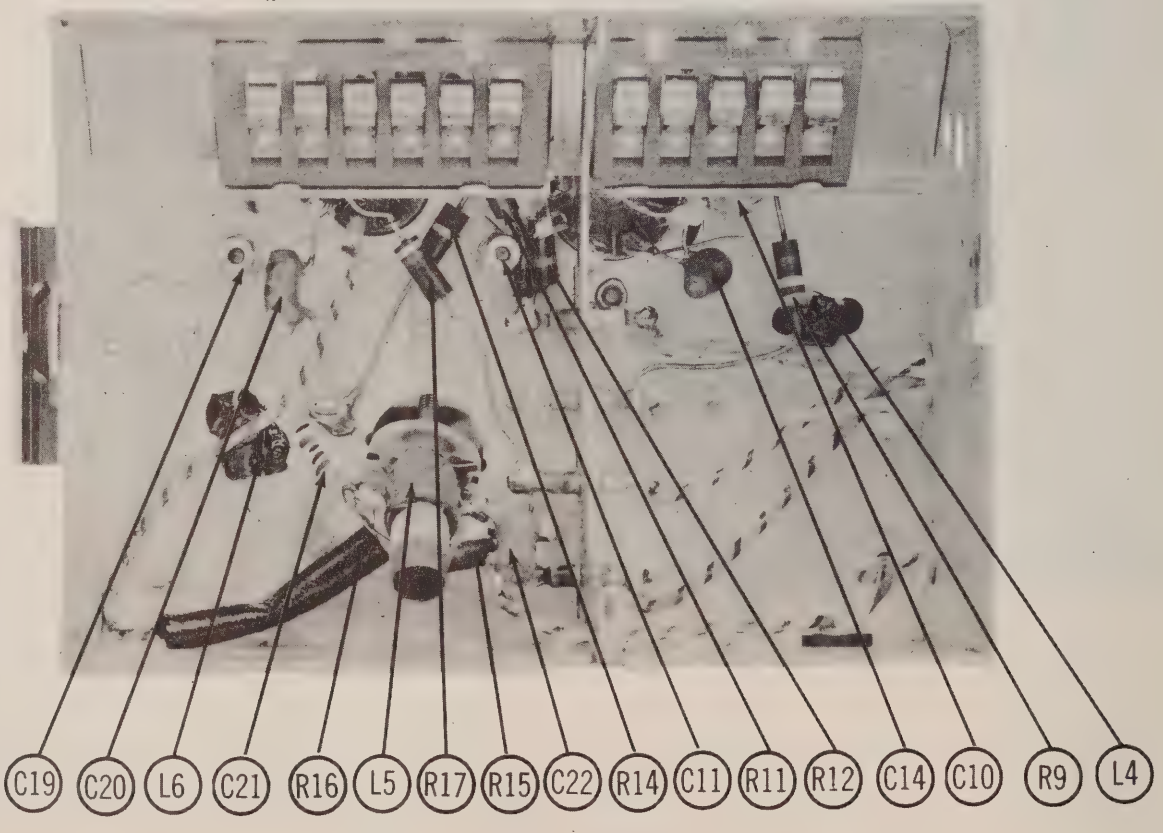
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V18.
# MEASURED FROM PIN 3 OF V16
■ MEASURED FROM 145VDC LINE
¶ MEASURED FROM PIN 7 OF V16



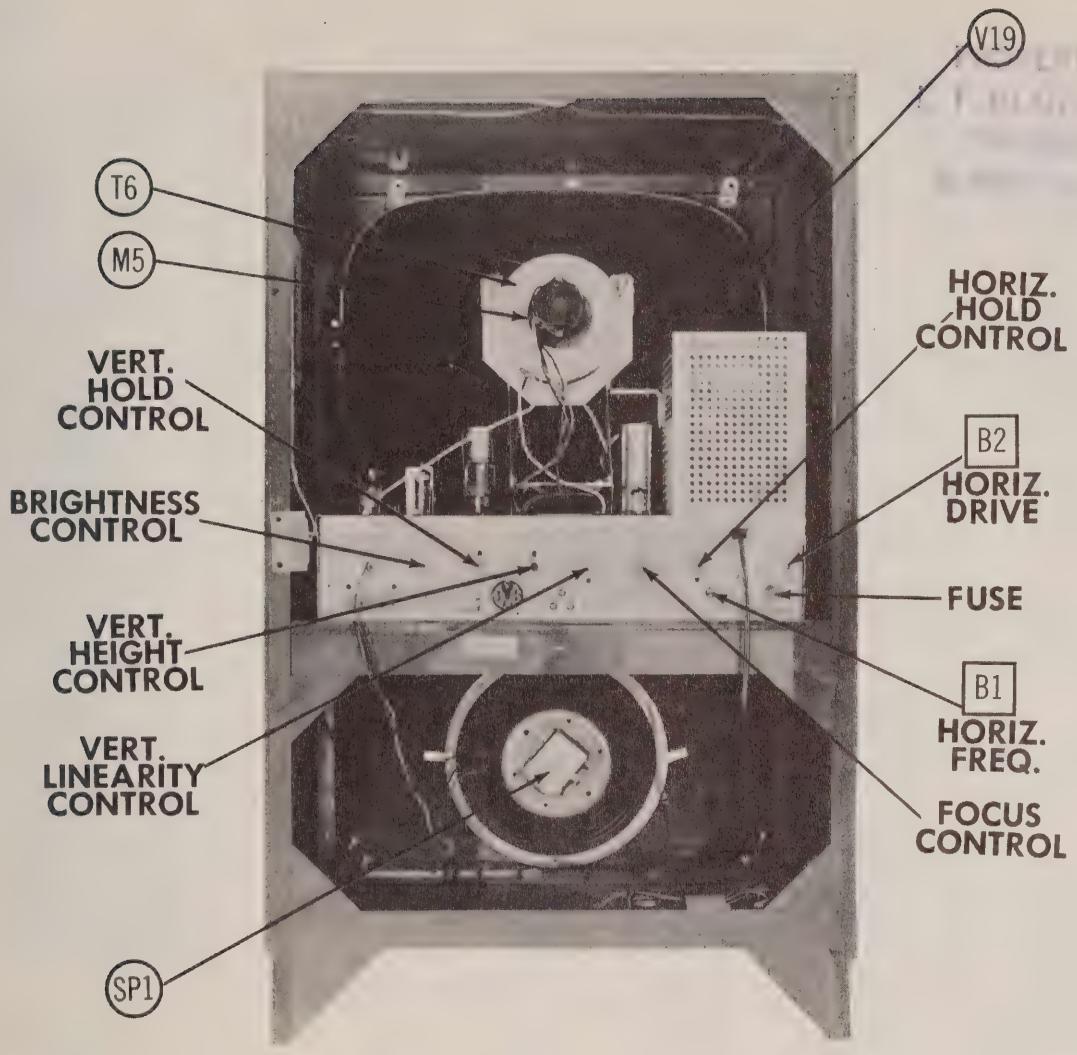
TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the Horizontal Hold control at the mid-position of its range and adjust the Horizontal Oscillator slug (B1) until the picture synchronizes horizontally.

Adjust the Horizontal Drive trimmer (B2) to maximum counter-clockwise position without a vertical white line or compression in the center of the picture.

Adjust the Width slug (B3) for a picture slightly wider than necessary to fill the picture mask horizontally.

Adjust the Horizontal Linearity slug (B4) for a picture that is symmetrical from left to right.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs from front panel.
2. Remove seven wood screws and remove rear cover.
3. Disconnect Built-in Antenna and Speaker.
4. Remove two wood screws and remove Antenna bracket.
5. Remove two Speaker nuts. Remove Speaker.
6. Remove four chassis bolts. Remove chassis.

NOTE: FOR PICTURE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6BK7	6BK7	9AJ	
B	RF Amplifier	6AG5	6AG5	7BD	
C	RF Amplifier	6BC5	6BC5	7BD	
V2	Converter	616	616	7BF	
V3	1st Video IF Amp	6CB6	6CB6	7CM	
V4	2nd Video IF Amp	6CB6	6CB6	7CM	
V5A	3rd Video IF Amp	6AG5	6AG6	7BD	Not directly interchangable
B	3rd Video IF Amp	6CB6	6CB6	7CM	
V6A	Video Output	6AC7	6AC7	8N	
B	Video Output	6AR6	6AN6	7BK	Not directly interchangable
C	Video Output	6CB6	6CB6	7CM	Not directly interchangable
V7	Sound IF Amp	6AU6	6AU6	7BK	
V8	Ratio Detector-AF Amplifier - AGC Rectifier	6T8	6T8	9E	
V9	Audio Output	6AQ6	6AQ6	7BZ	
V10	Sync. Separator-DC Restorer-Sync Amplifier	12AU7	12AU7	9A	
V11	Vert Oscillator-Vert Discharge	6SN7GTA	6SN7GT	8BD	
V12	Vert Output	6S4	6S4	9AC	
V13	Horiz. AFC	6AL5	6AL5	6BT	
V14	Horiz. Mult.	6SN7GTA	6SN7GT	8BD	
V15	Horiz. Output	6BG6G	6BG6G	5BT	
V16	Damper	6W4GT	6W4GT	4CG	
V17	HV Rectifier	1B3GT	1B3GT	3C	
V18	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V19	20CP4	20CP4	12D	① Circuit changes necessary
		20CP4A ①②	12D	② 3/8" longer
		20DP4 ②	12D	
		20DP4A ①②	12D	
		20HP4 ①	12C	
		20HP4A ①②	12C	
		20LP4 ①②	12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Silvertone Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C1A	±40	450	718-295	AFH3-159		UPT4450-1020		FP375	TVL-3764	
B	±40	450								
C	±100	200								
C2A	±40	450	718-295	AFH3-159		UPT4450-[illegible]		FP375	TVL-3764	
B	±100	200								
C	±40	450								
C3	40	250	718-299	PRS250/40		BR4035A		TC58	TVA-1511	
C4	60	200	718-303	PRS250/30-30		BR4045		TC66	TVA-1613	
C5	20	450	718-276	PRS450/20		BR2045A		TC75	TVA-1709	
C6	8	500	718-298	PRS500/8		BR450A		TC82	TVA-1902	
C7	4	50	718-292	PRS150/4		BR550		TC30	TVA-1303	
C8	4	50	718-292	PRS150/4		BR550		TC30	TVA-1303	
C9	2.2				TCZ-2.2		NP0K-2R2		5TCCB-V22	
C10	3-9				829-10					
C11	5-3				829-3			CT565A		
C12	120			SH20	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C13	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C14	100			SI1000	D6-101	TM5T1	GP1L-102	UC-531	5HK-D1	
C15	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C16	5-3				829-3			CT565A		
C17	20			SI20NP0	TCZ-20		NP0K-200	ZT-542	5TCC-Q2	
C18	10			SI10N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C19	5-3				829-3			CT565A		
C20	1000			SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C21	10			SI10NP0	TCZ-10		NP0K-100	ZT-541	5TCC-Q1	
C22	120			SH120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C23	.005	600	T16-190	PRS5-005	DD-502	PTE6D5	GP2-333-502	PT625	5TM-D5	Note 1
C24	5000		T16-177	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C25	5000		T16-177	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C26	75	500		J460-000075				MCB230		
C27	5000		T16-177	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C28	.2	400	T16-188	584-2		PTE4P22		TP429	4TM-P22	
C29	5000		T16-177	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C30	5000		T16-177	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	Note 1
C31	5000		T16-177	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C32	5000		T16-177	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	Note 1
C33	5000		T16-177	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C34	100		T16-196	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C35	10		T15-233	SI10NP0	TCZ-10		NP0K-100	ZT-541	5TCC-Q1	
C36	.05	400	T16-188	P488-01	D6-103	PTE4S1		PT411	4TM-S1	
C37	47				TCZ-47		NP0L-470		5TCC-Q47	Note 2
C38	.2	600	T16-312	584-2				TP419		
C39	2				TCZ-2.2		NP0K-020		5TCCB-V22	
C40	120			SI120	D6-121	TM5T12	GP1K-121	UC-5312	5GA-T12	
C41	75			SI75NP0	TCZ-75		NP0-333-750	ZT-5475	5TCC-Q75	
C42	5000		T16-177	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C43	5		T15-122	SI5NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C44	220	500	T15-230	1468-00025	D6-221	5W5T25	GP2K-221	MC240	1FM-325	
C45	2000		T15-228	SI2000	D6-202	TM5D2	GP2-333-202	UC-532	5HK-D2	
C46	5000		T16-177	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C47	5000		T16-177	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C48	470	500	T15-200	1468-0005	D6-472	5W5T25	GP2K-471	MC245	1FM-35	
C49	.005	600	T16-190	P688-005	DS-502	PTE6D5	GP2-333-502	PT625	5TM-D5	Note 3

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Silvertone Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C50	.3	400	T16-188	584-2		PTE4P32		TP429	4TM-P32	
C51	.01	600	T16-301	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C52	.05	400	T16-189	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C53	.003	600	T16-198	P688-002	D6-302	PTE6D3	GP2-333-302	PT632	6TM-D2	
C54	.006	600	T16-309	P688-006		PTE6D6	GP2-333-602	PT636	6TM-D6	
C55	.006	600	T16-309	P688-006		PTE6D6	GP2-333-602	PT636	6TM-D6	
C56	.0047	600	T16-220	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C57	.05	600	T16-193	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C58	.1	600	T16-308	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C59	1000		T15-220	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C60	1000		T15-220	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C61	.01	600	T16-301	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C62	.005	600	T16-190	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C63	.05	600	T16-193	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C64	3900	500		1464-004		LDHSD4		MCB463		
C65	330	500	T15-226	1469-00035						
C66	.3	600	T16-218	584-2				TP419		
C67	390	500	T15-231	1469-0004		BR5T4		MCB243	MS-34	
C68	100		T15-196	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	Note 4
C69	100		T15-196	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	Note 1
C70	.1	600	T16-308	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C71	.05	1000	T16-216	P1068-05		PTE1S5		PT1615	MB-S5	
C72	.02	1000	T16-219	P1068-02		PTE1S2		PT1612	MB-S2	
C73	.25	400	T16-217	P488-25		PTE4P25		PT4025	4TM-P25	
C74	500	30000	T15-234	HV30C	TV3-502	MM-C30TS	413-501	HV-20035	30DK-T5	
C75	33		T15-210	SI33	D6-330		GP1K-330	UC-5433	5GA-Q33	Note 1
C76	.2	400		P488-25		PTE4P22		PT4025	4TM-P22	Note 1
C77	.03	600		P688-03		PTE6S3		PT613	6TM-S3	Note 1
C78	120	500		1468-00015	D6-121	5W5T15	GP2K-121	MC-336	1FM-315	Note 1

Note 1. Not used in all models
Note 2. Some models use 120MMF in this application (Part #T16-198)
Note 3. Some models use .002MFD in this application (Part #T15-231)
Note 4. Some models use 390MMF in this application (Part #T15-231)

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω	½	T24-197	*				Contrast-Panel
B	500KΩ	1						Volume & SW-Rear
R2A	1 Meg	1	T25-17	QII-137	AG-61-S	AB-69	SU-54	Vert Hold
B	Shaft		Not Req.	Not Req.	FK8-1/4	AK-1	Not Req.	Attach to R2A
R3A	50KΩ	½	T25-10	QII-123	AG-44-S	AB-31	SU-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	FK8-1/4	AK-1	Not Req.	Attach to R3A
R4A	50KΩ	½	T25-10	QII-123	AG-44-S	AB-31	SU-35	Brightness
B	Shaft		Not Req.	Not Req.	FK8-1/4	AK-1	Not Req.	Attach to R4A
R5A	2 Meg	½	T25-15	QII-139	AG-83-S	AB-75	SU-56	Height
B	Shaft		Not Req.	Not Req.	FK8-1/4	AK-1	Not Req.	Attach to R5A
R6A	2500Ω	½	T25-13	QII-113	AG-15-S	AB-7	U-8	Vert Linearity
B	Shaft		Not Req.	Not Req.	FK8-1/4	AK-1	Not Req.	Attach to R6A
R7A	2250Ω	2	T25-14	WK-2500	A43-2500		R2500L	Focus-Wire Wound
B	Shaft		Not Req.	Not Req.	FK8-1/4		Not Req.	Attach to R7A

* CONCENTRIKIT EQUIVALENT-KIT K-3, BASE ELEMENTS & SHAFTS B11-108 & P1-400(Panel)
B13-123 & R2-400 (Rear) & SWITCH 76-1

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	NOTES
R8	22KΩ	1			
R9	47KΩ	1			
R10	220KΩ	1			
R11	1KΩ	1		BTS-1000	
R12	220KΩ	1			
R13	4700Ω	1		BTS-4700	
R14	220KΩ	1			
R15	15KΩ	1		BTS-15K	
R16	10Ω	1			
R17	10KΩ	1			
R18	10KΩ	1			
R19	8200Ω	2		BTS-8200	Note 1
R20	4700Ω	1	T60-759	BTS-4700	
R21	56Ω	1	T60-806		
R22	6800Ω	1	T60-786	BTS-680	
R23	680Ω	1	T60-708	BTS-680	
R24	1.2Meg	1	T60-783	BTS-1.2Meg	Note 2
R25	100Ω	1	T60-752	BTS-100	
R26	56Ω	1	T60-806		
R27	100Ω	1	T60-752	BTS-100	
R28	4700Ω	1	T60-759	BTS-4700	
R29	82Ω	1	T60-776	BTS-82	
R30	120KΩ	1	T60-817	BTS-120K	
R31	470KΩ	1	T60-731	BTS-470K	
R32	8200Ω	1	T60-778	BTS-8200	
R33	1000Ω	1	T60-675	BTS-1000	Note 3
R34	470KΩ	1	T60-731	BTS-470K	
R35	82Ω	1	T60-776	BTS-82	
R36	6800Ω	2	T60-806	BTS-6800	
R37	10KΩ	1	T60-760	BTS-10K	
R38	100KΩ	1	T60-801	BTS-100K	
R39	100KΩ	1	T60-801	BTS-100K	
R40	100KΩ	1	T60-801	BTS-100K	
R41	22KΩ	2	T60-810	BTS-22K	
R42	150Ω	1	T60-767	BTS-150	
R43	47KΩ	1	T60-730	BTS-47K	
R44	12KΩ	1	T60-811	BTS-12K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	NOTES
R45	4.7Meg	1	T60-779	BTS-4.7Meg	
R46	270KΩ	1	T60-747	BTS-270K	
R47	100KΩ	1	T60-801	BTS-100K	
R48	180KΩ-5%	1	T60-786	BTS-180K-5%	
R49	330KΩ-5%	1	T60-787	BTS-330K-5%	
R50	800Ω	5	T60-800	13/4A-800	
R51	1.2Meg	1	T60-783	BTS-1.2Meg	
R52	22KΩ	1	T60-744	BTS-22K	
R53	680KΩ	1	T60-807	BTS-680K	
R54	2200Ω	1	T60-714	BTS-2200	
R55	3900Ω	1	T60-710	BTS-3900	
R56	2200Ω	1	T60-714	BTS-2200	
R57	22KΩ	1	T60-744	BTS-22K	
R58	8200Ω	1	T60-778	BTS-8200	
R59	8200Ω	1	T60-778	BTS-8200	
R60	1.2Meg	1	T60-783	BTS-1.2Meg	
R61	10KΩ	1	T60-760	BTS-10K	
R62	15KΩ	1	T60-783	BTS-15K	
R63	2.7Meg	1	T60-872	BTS-2.7Meg	
R64	56KΩ	1	T60-802	BTS-56K	
R65	4700Ω	1		BTA-4700	Note 4
R66	4700Ω	1		BTA-4700	Note 3
R67	2.2Meg	1	T60-726	BTS-2.2Meg	
R68	400Ω	1		BTS-470	Note 5
R69	15KΩ	1	T60-783	BTS-15K	
R70	100KΩ	1	T60-801	BTS-100K	
R71	100KΩ	1	T60-801	BTS-100K	
R72	4.7Meg	1	T60-779	BTS-4.7Meg	
R73	470KΩ	1	T60-731	BTS-470K	
R74	1500Ω	1	T60-729	BTS-1500	
R75	5600Ω	1		BTS-5600	
R76	100KΩ	1	T60-801	BTS-100K	
R77	270KΩ	1	T60-747	BTS-270K	
R78	56KΩ	1	T60-802	BTS-56K	
R79	1000Ω	1	T60-675	BTS-1000	Note 6
R80	1 Meg	1	T60-688	BTS-1 Meg	
R81	47Ω	1	T60-805		Note 3

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	NOTES
R82	25KΩ	10	T60-853	1 3/4X-25K	
R83	100Ω	½	T60-732		Note 3
R84	1 Meg	1	T60-877		Note 3
R85	3300Ω	2	T60-816	BTB-3300	
R86	330Ω	2	T60-814	BTB-330	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	NOTES
R87	220KΩ	½	T60-867	BTS-220K	
R88	15KΩ	10		1 37A-15K	Note 3
R89	270KΩ	½		BTS-270K	Note 3
R90	15Meg	½		BTS-15Meg	Note 3

Note 1 Not used with alternate tuner.
Note 2 Some models may use a 1 Meg resistor in this application.
Note 3 Not used in all models.
Note 4 Some models may use a 8200Ω resistor in this application.
Note 5 Some models may use a 680Ω resistor in this application.
Note 6 Some models may use a 470Ω resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ 1.8A	780VCT @ .100ADC	5VAC @ 3A SEC 4 6.3VAC @ .7A	6.3VAC @ 5A SEC 5 6.3VAC @ .5?A	C-80-264	P8169	P-3067 P-3097 ①		

① Use for SEC. #3

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	170Ω	940Ω	T80-257	A-8125 ①	A-3000 ① HVO-7 ④	TBO-2 ②	A-97X ①	Vert osc. trans. Horiz. output trans.
T3	385ΩTap @ 25Ω	9.4ΩTap @ .6Ω, 7.1Ω SEC 2 2Ω SEC 3 0Ω	T80-285 T80-263 ③					
T4	1050ΩTap @ 12Ω		T80-261	A-8123	A-3037	TSO-8	A-102X	Vert output trans.
T5A	13Ω		T83-694	DY-8	MDF-70	TY-2	Y-12	Horiz. deflection coils
B	58Ω							Vert. deflection coils
T6	420Ω		T10-560	FC-11	MF-2	TC-2 ⑤	B470-R	Focus coil

① Drill one new mtg. hole.
② Mount on top of chassis.
③ Alternate horiz. output trans.
④ Use with MWC-1
⑤ Fabricate new mtg. bracket.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T7	1.7KΩ	3.3Ω	400Ω	.62Ω	80-253R ① 80-253 ②	A-3825 ①	A-3928 ①	RO-304 ①	S-1X ①	① Drill one new mtg. hole. ② Alternate audio output transformer.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	10"	PM	3.3Ω	79-389	ST-120 Mod. P10-S	10A31	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: Silvertone PART No.	REPLACEMENT DATA: MERIT PART No.	NOTES
L1	Ant. Coils	0Ω	0Ω			
L2	RF Choke	0Ω				
L3	RF, Mixer Grid & Osc. Coils	0Ω				
L4	Fil. Choke	0Ω				
L5	Pri. Video IF	1Ω			TV-112	
L6	Fil. Choke	0Ω				
L7	2nd. Video IF	.1Ω	.5Ω	T10-541		
L8	Sound Trap	0Ω	.1Ω	T10-574	TV-150	
L9	Fil. Choke	0Ω				
L10	3rd. Video IF	.2Ω	.2Ω	T10-542		
L11	4th. Video IF	.3Ω	.3Ω	T10-543		
L12	Series Peak. Coil	6.5		T10-557	TV-181	90 Microhenries
L13	Series Peak. Coil	15Ω		T10-558		375 Microhenries
L14	Series Peak. Coil	10.5Ω		T10-566	TV-184 *	186 Microhenries wound on 12KΩ resistor
L15	4.5MC Trap	1.8Ω		T10-571	TV-151	
L16	Shunt Peak. Coil	8Ω		T10-565		380 Microhenries wound on 10KΩ resistor
L17	Sound IF	.8Ω		T10-556	TV-151	
L18	Ratio Det.	3.6Ω	.3ΩCT	T10-553	TV-118	Tertiary .75Ω
L19	Horiz. Osc.	60Ω		T10-555	TV-183	
L20	Horiz. Lin.	37Ω		T10-561	MWC-1	
L21	Width Coil	.8Ω		T10-551		
L22	Ant. Coil	.9Ω		T10-550		Not used in all Models

* Parallel with 12KΩ resistor

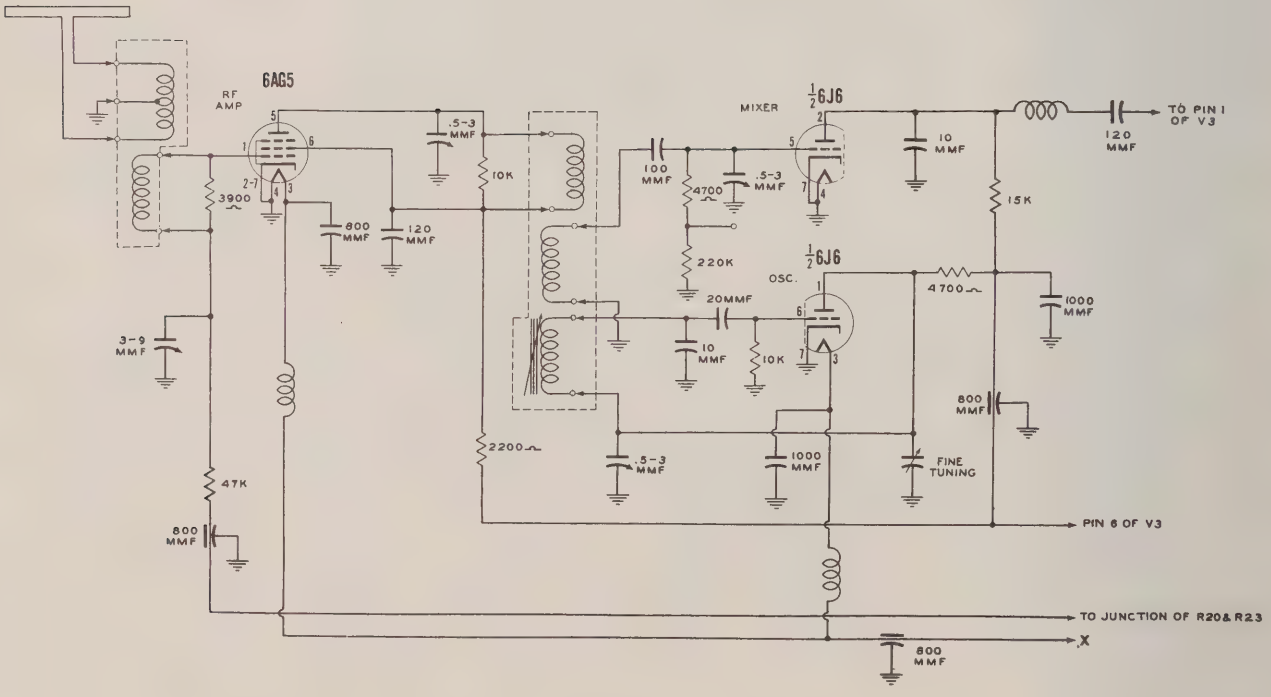
PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Silvertone PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	5A 250V	T43-12	T87-44	312005	341001	MTH-5	HKP
M2	3AG P/T	1/8 A. 250V	T43-14		318.125		GJV-1/8A	

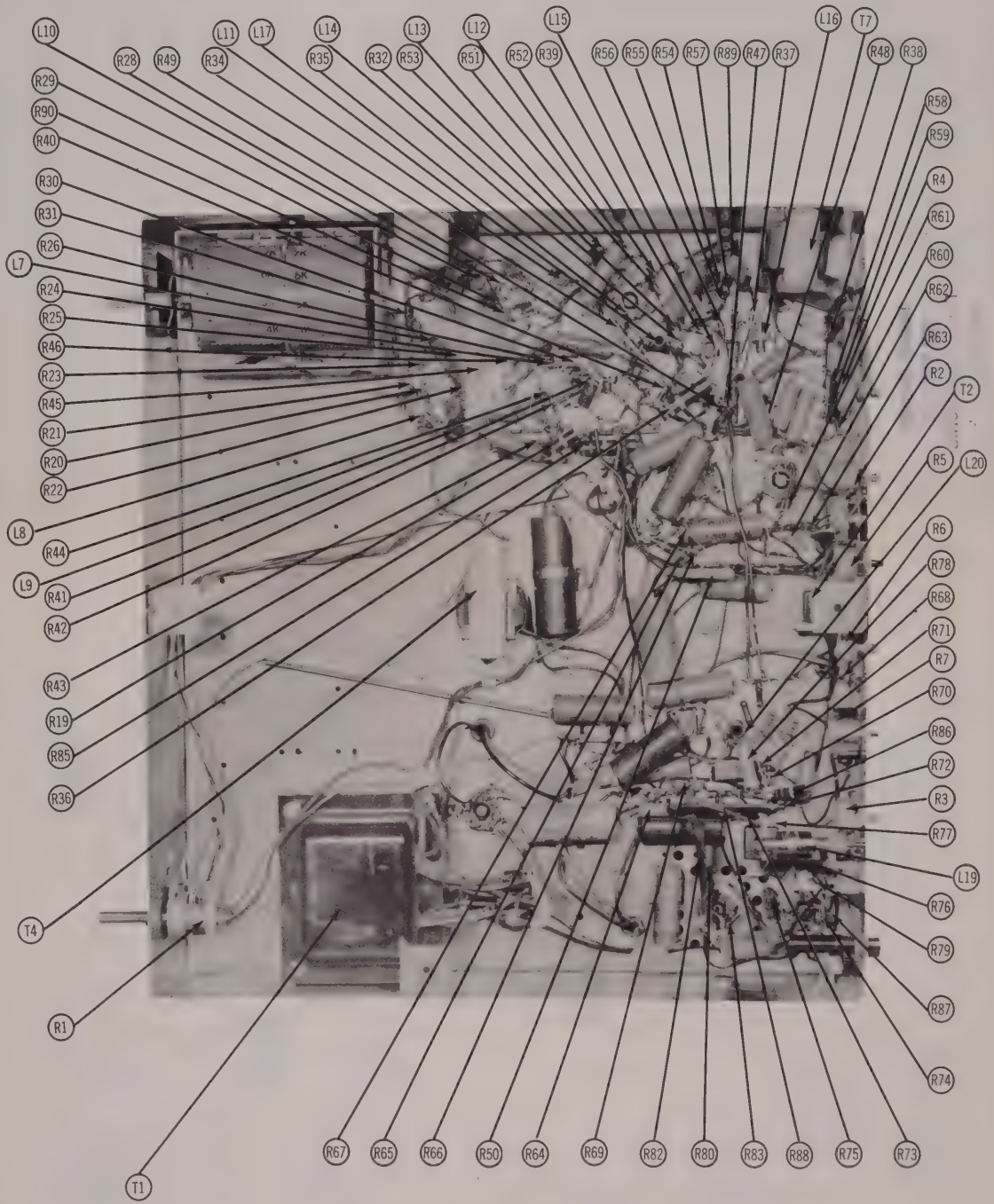
MISCELLANEOUS

ITEM No.	PART NAME	Silvertone PART No.	NOTES
M3A	RF Tuner	T95-29	
B	RF Tuner	T95-28	Alternate
M4	Crystal	T48-45	1N34
M5A	Ion Trap	T83-684	Single
B	Ion Trap	T83-670	Double
B2	Trimmer	T20-145	Horiz. Drive
	Knob	T52-351	Channel Selector
	Knob	T52-352	Fine Tuning
	Knob	T52-353	Off/On Volume
	Knob	T52-354	Contrast
	Cabinet	T42-511	Includes Grille Cloth
	Back Cover	T32-19	
	Cover	T21-170	Picture Tube Cup for Back Cover
	Grille Cloth	T98-28	
	Safety Glass	T48-57	
	Mask	T31-183	



ALTERNATE TUNER SCHEMATIC

PAGE 15
PAGE 16



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PHOTOFACT* Folder

*TRADE MARK

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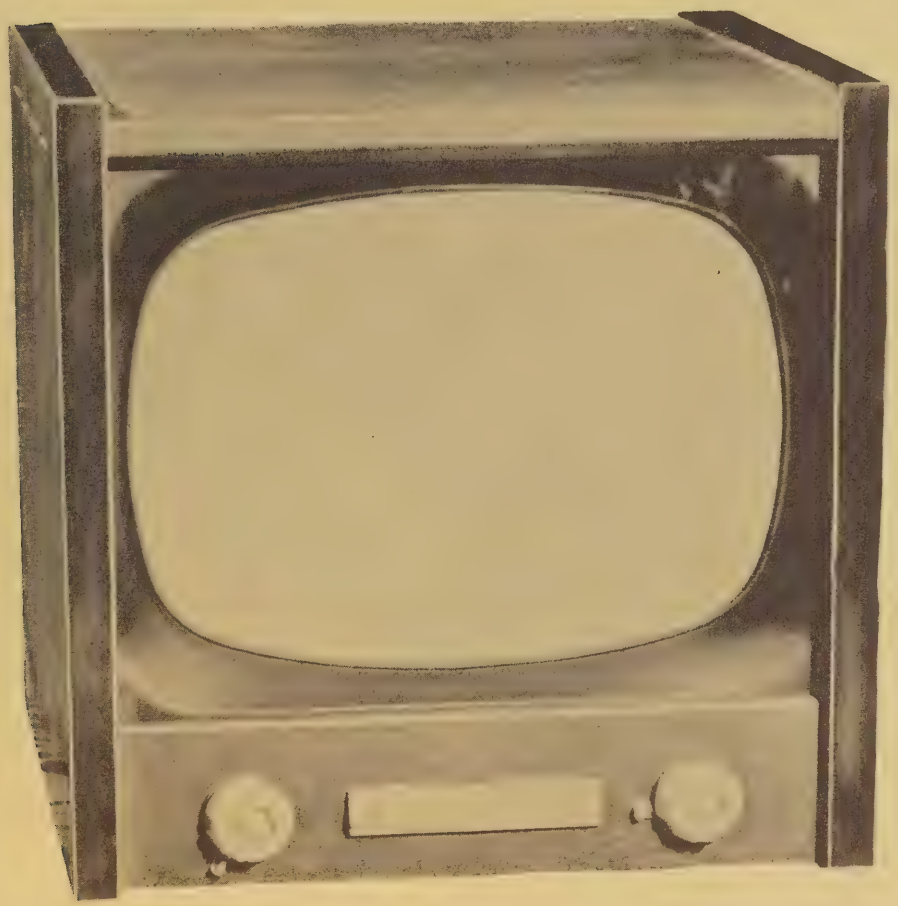

MODEL 9209-AW

STEWART-WARNER MODELS
9209-A, AW, B, C, D, (Series A, B, C, D, E)

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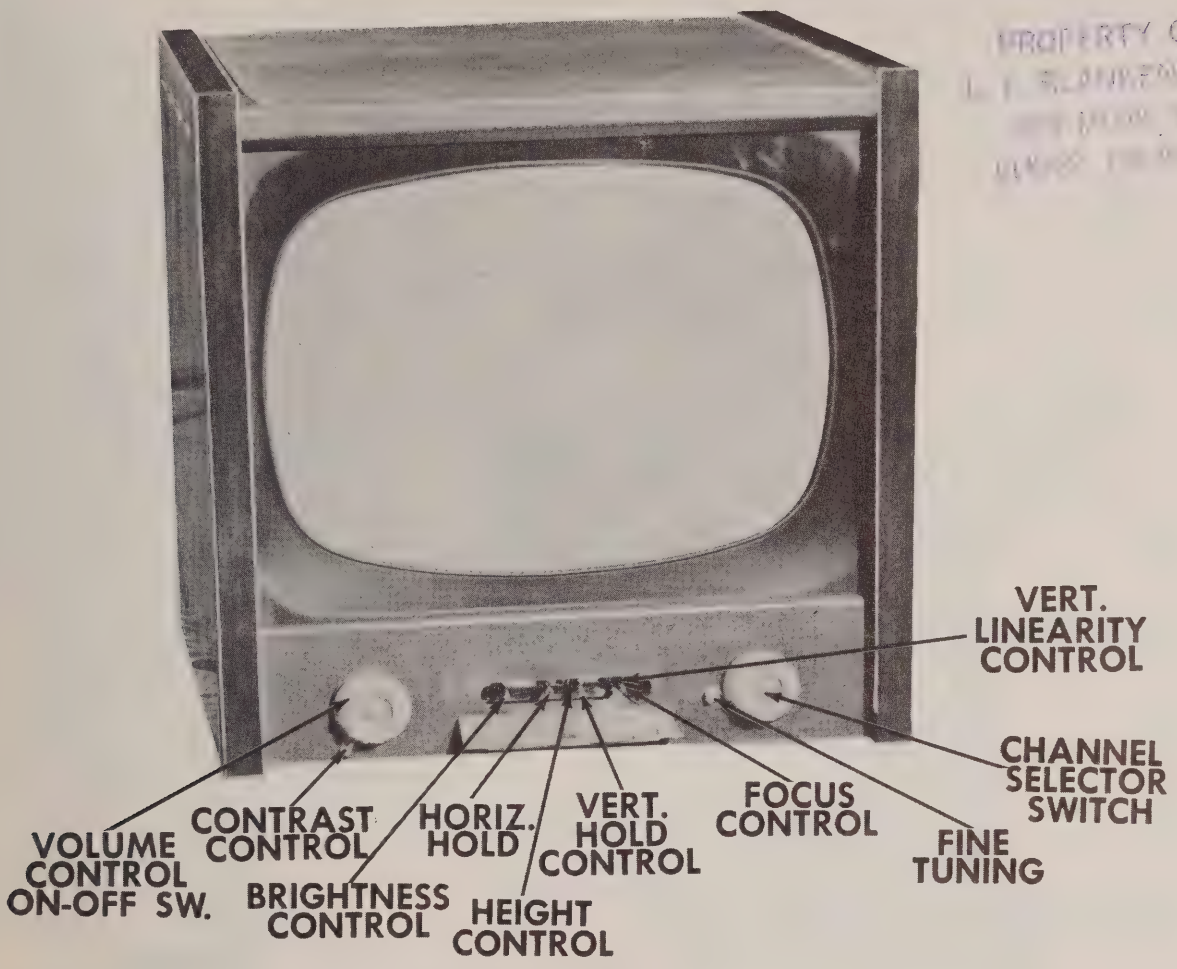

STEWART-WARNER MODELS 9209-A, AW, B, C, D, (Series A, B, C, D, E)

STEWART- WARNER 9209-AW

TRADE NAME	Stewart-Warner Models 9209-A, AW, B, C, D, (Series A, B, C, D, E)
MANUFACTURER	Stewart-Warner Elect., Div. of Stewart-Warner Corp., 1300 N. Kostner Ave., Chicago 15, Ill.
TYPE SET	Television Receiver
TUBES	Nineteen
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.86 Amp. @ 117 volts AC
TUNING RANGE—	Channels 2 thru 13

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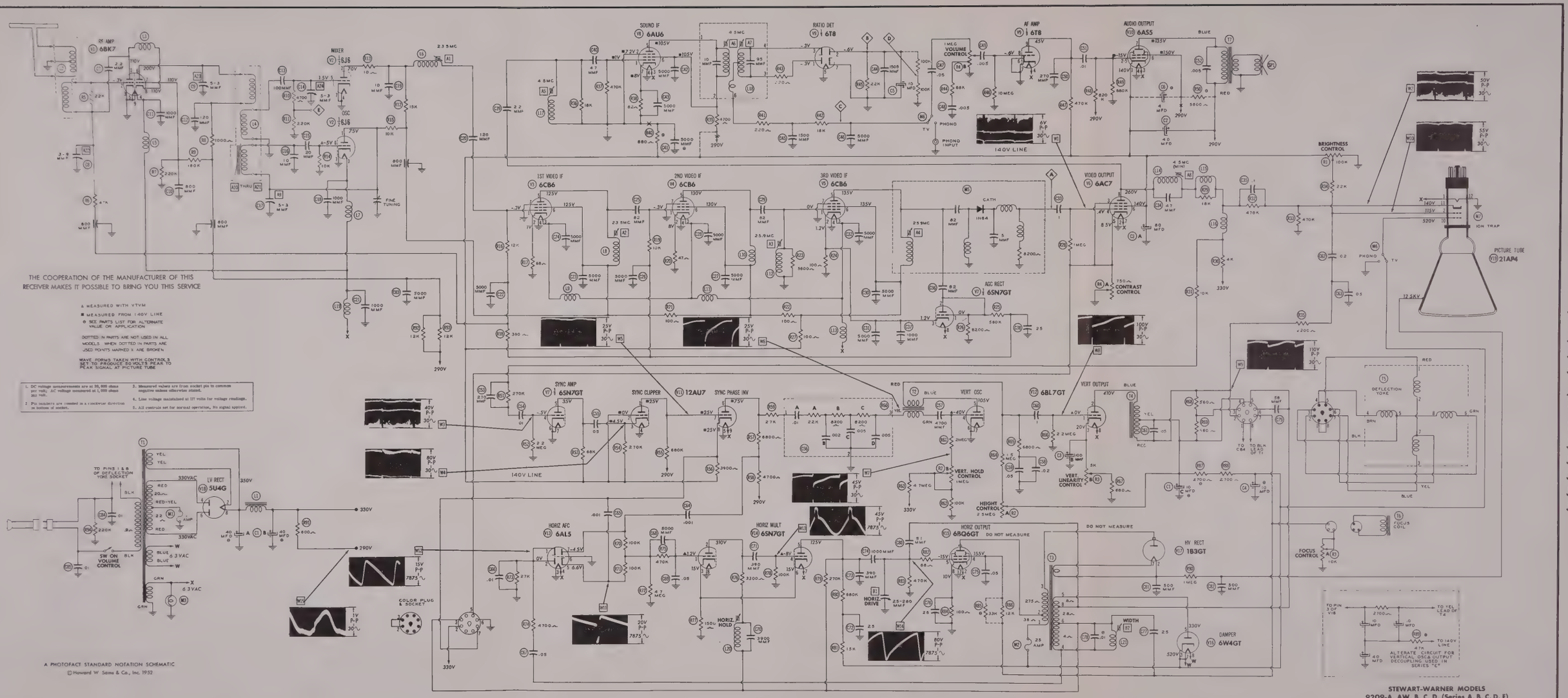
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A MEASURED WITH VTVM
■ MEASURED FROM 140V LINE
⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 80 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements are at 20,000 ohms per volt; AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, No signal applied.
RF AMP V1 6BK7
MIXER V2 6J6
OSC V2 6J6
SOUND IF V8 6AU6
RATIO DET V9 6T8
AF AMP V9 6T8
AUDIO OUTPUT V10 6A55
1ST VIDEO IF V3 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 6CB6
VIDEO OUTPUT V6 6AC7
AGC RECT V7 6SN7GT
SYNC AMP V7 6SN7GT
SYNC CLIPPER V11 12AU7
SYNC PHASE INV
VERT OSC
VERT OUTPUT V12 6BL7GT
HORIZ AFC V13 6AL5
HORIZ MULT V14 6SN7GT
HORIZ OUTPUT V15 6BQ6GT
HV RECT V17 1B3GT
DAMPER V16 6W4GT
LV RECT V18 5U4G
PICTURE TUBE V19 21AP4
VOLUME CONTROL
CONTRAST CONTROL
BRIGHTNESS CONTROL
VERT. HOLD CONTROL
VERT. LINEARITY CONTROL
HEIGHT CONTROL
HORIZ. HOLD
HORIZ. DRIVE
WIDTH
FOCUS CONTROL
FINE TUNING
SW ON VOLUME CONTROL
COLOR PLUG & SOCKET
DEFLECTION YOKE
ION TRAP
FOCUS COIL
140V LINE
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ALTERNATE CIRCUIT FOR VERTICAL OSC & OUTPUT DECOUPLING USED IN SERIES "E"
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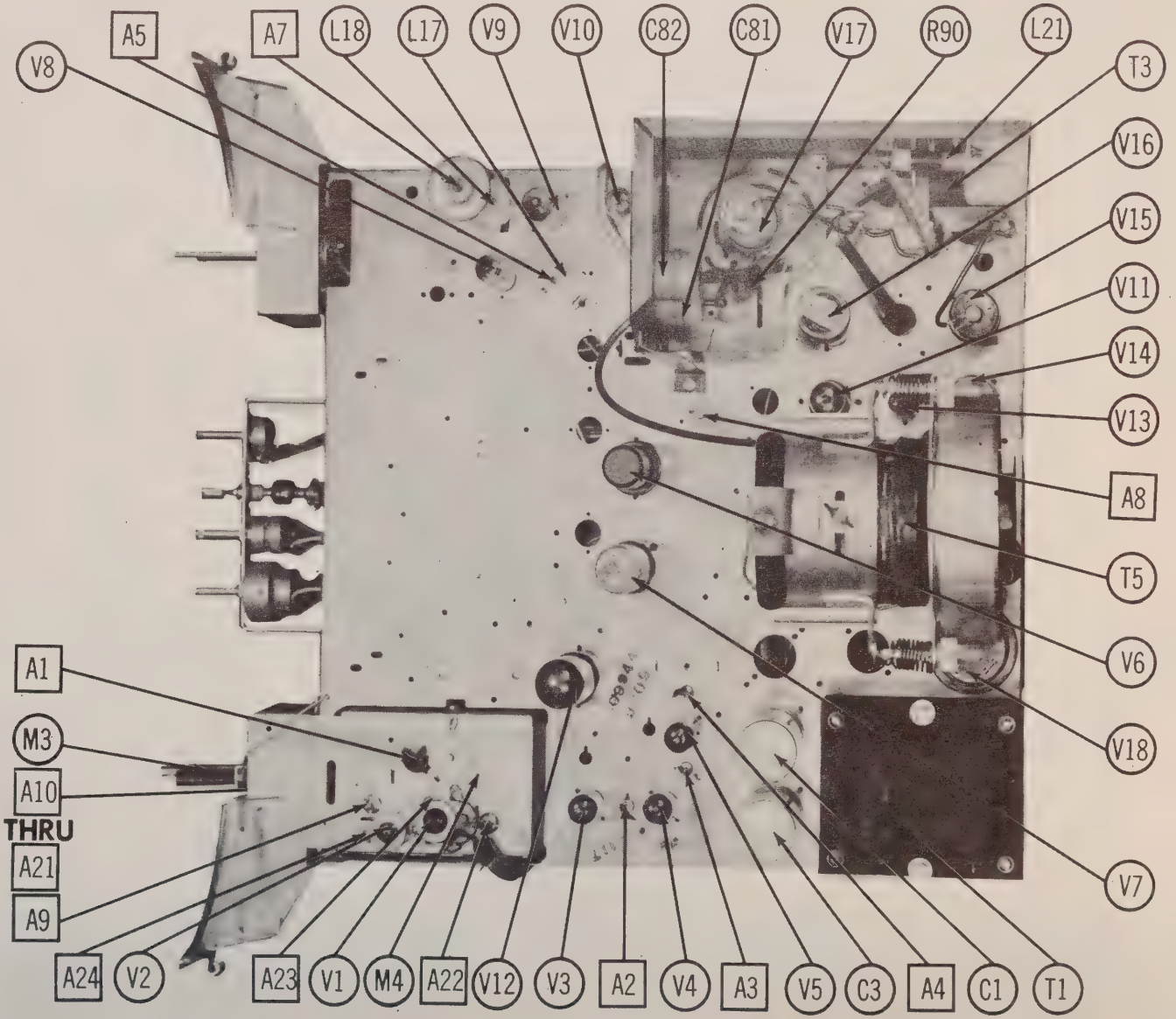
CHASSIS TOP VIEW



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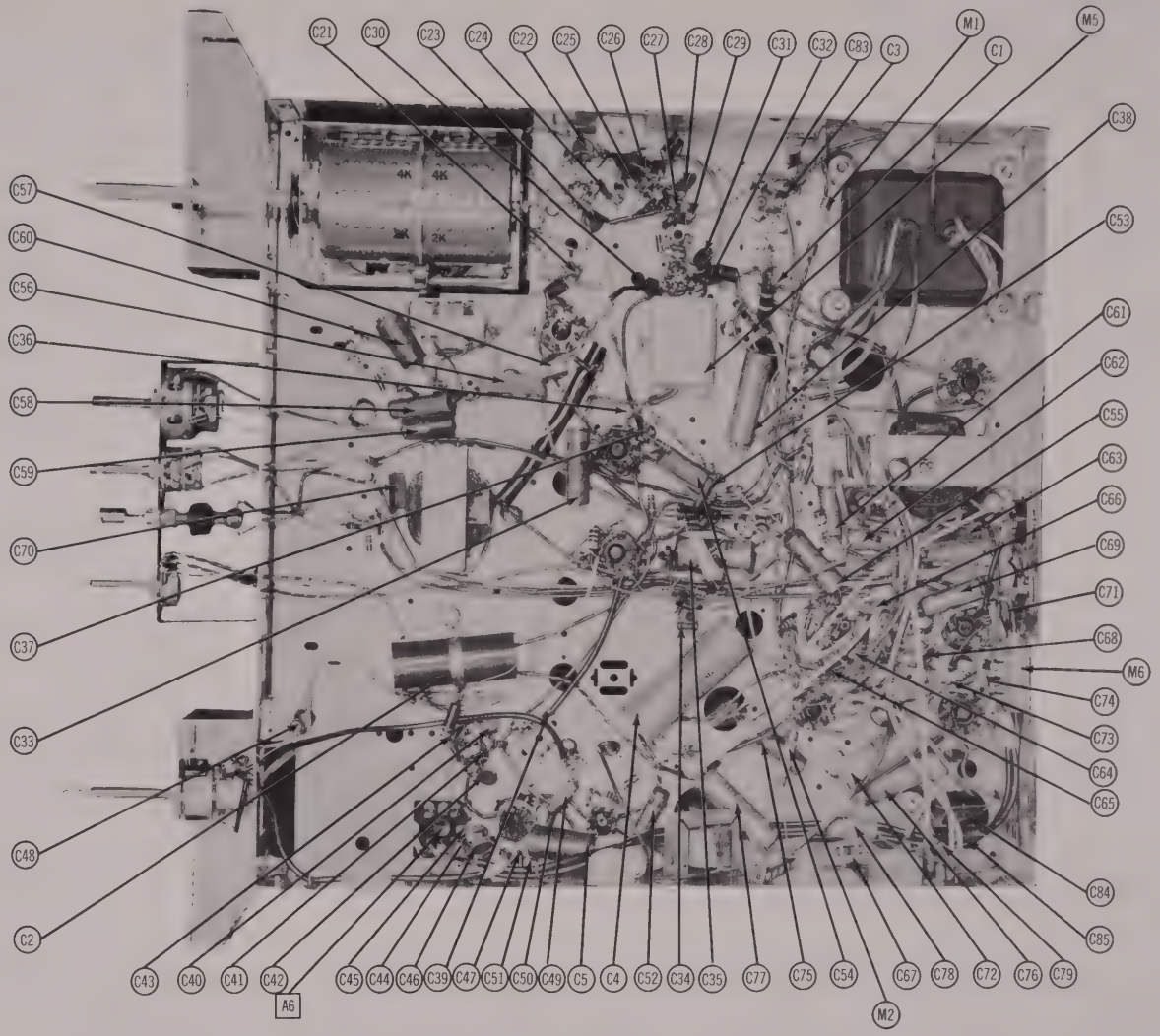
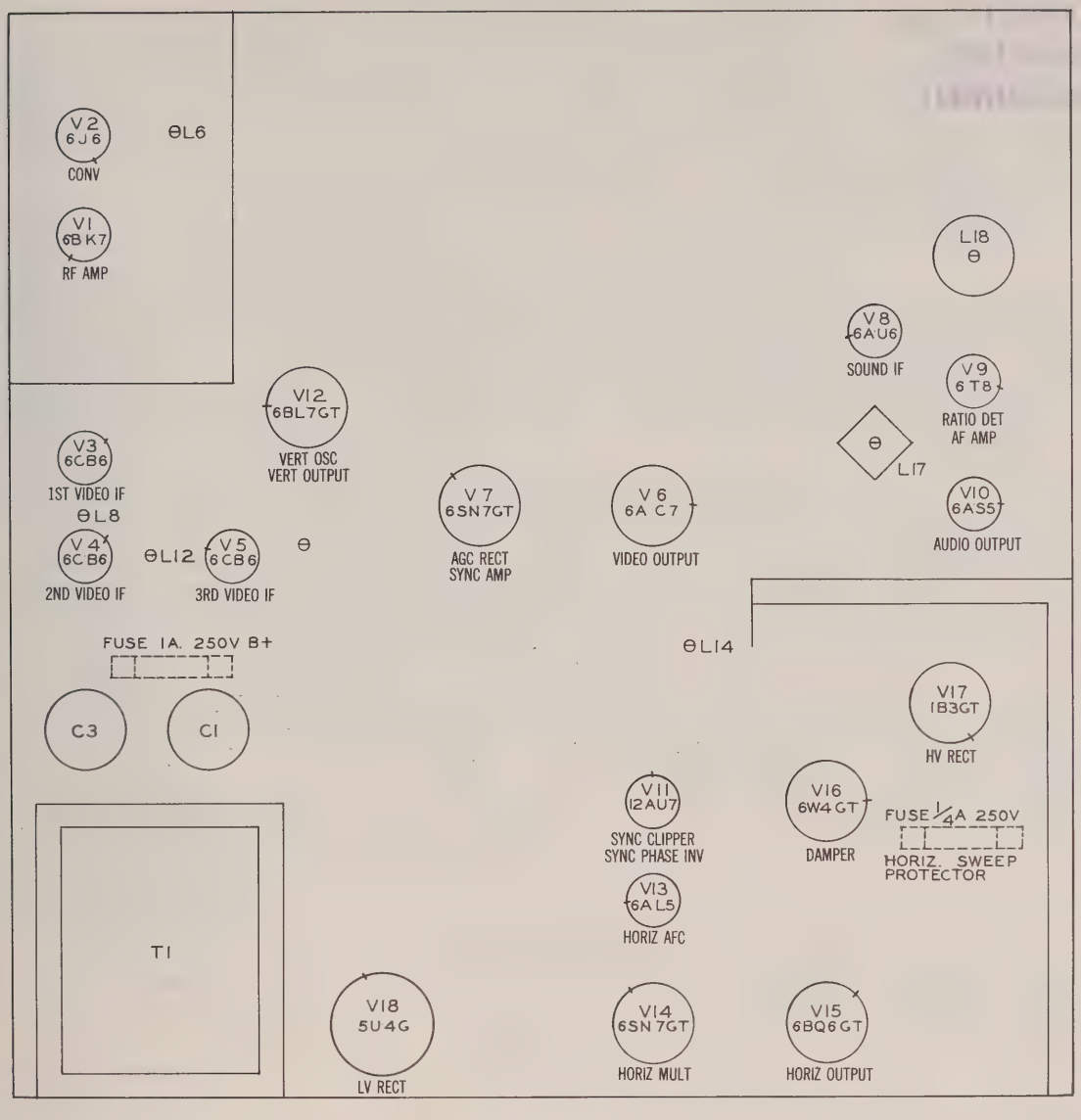
L. F. [illegible]
[illegible] MAIN ST.
DENVER, COLORADO



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tubeplacement chart for location and type of tube.

POWER SUPPLY FAILURE
No Raster, No Sound - V18 , Fuse (M1)

LOSS OF PICTURE OR SOUND
No Pic, No Sound, Has Raster - V2, V3, V4, V5, V6, V10
No Pic, No Sound, Has Snow - V1, V2, V3
No Pic, Has Sound, Has Raster - V6, V19
Has Pic, No Sound - V8, V9, V10
Overloaded Picture - V7

SYNC FAILURE
No Vert. Sync - V11, V12
No Horiz. Sync - V11, V13, V14
No Vert. or Horiz. Sync - V7, V11

SWEEP FAILURE
No Raster, Has Sound - V14, V15, V16, V17, V19,Fuse (M2)
No Vertical Deflection - V12
Poor Vert. Linearity or Foldover - V12
Poor Horiz. Linearity or Foldover - V14, V15, V16
Narrow Picture - V14, V15, V16, V17, V18
Vert. Off Freq. - V11, V12
Horiz. Off Freq. - V11, V13, V14

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard can be eliminated by removing the horizontal multivibrator tube, V14 from the socket.

VIDEO IF ALIGNMENT

Remove the converter tube, V2, from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative terminal of a 3 volt battery to the ungrounded side of C38. Connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	23.5MC (Unmod)	Any	DC probe to point (A) Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	"	"	25.9MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	25MC (10MC Swp)	22.25MC 26.75MC	Any	Vert amp thru 47KΩ to point (A) Low side to chassis.		Check for response curve similar to fig 1. If necessary retouch A1 thru A4 for proper response.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point (B) to chassis. The junction of these two resistors is alignment point (D) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.001MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point (B) Common to chassis.	A5, A6	Adjust for maximum deflection.
5.	"	"	"	"	DC probe to point (C) Common to point (D)	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	.001MFD	High side to point (A). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. to point (B). Low side to chassis.	A5, A6	Disconnect stabilizer capacitor C5. Adjust for curve of maximum amplitude and symmetry as per fig. 2.
5.	"	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A7	Reconnect capacitor C5. Adjust A7 so that 4.5MC occurs at center of crossover lines as per fig. 3. SLIGHTLY retouch A6 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.001MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe thru detector fig. 4 to pin 11 of picture tube. Common to chassis.	A8	Adjust for MINIMUM deflection.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary.
If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A9. It should be noted that this is an all channel oscillator circuit adjustment and should not be adjusted for any individual channel. If adjustment of A9 will not bring all channels well within the range of the fine tuning control it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft.
The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. thru 47KΩ to point (A). Low side to chassis.	A10	Adjust to place sound marker as shown in fig. 5. Video Marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A11	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A12	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A13	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A14	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A15	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A16	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A17	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A18	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A19	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A20	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A21	

ALIGNMENT INSTRUCTIONS (CONT.)

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3824 MEADE ST.
DENVER, COLORADO

RF AND MIXER ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to point ◇E◇. Low side to chassis.	A22, A23 A24	Adjust for response curve similar to fig. 6 with markers above 90%.
9.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response curve similar to fig. 6. If markers fall below 70% on any channel make slight compromise adjustments of A22, A23 and A24 with channel switch set for that channel. Recheck all channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

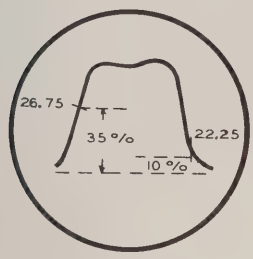


FIG. 1

FIG. 2

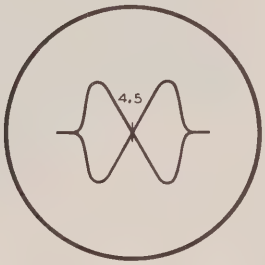


FIG. 3

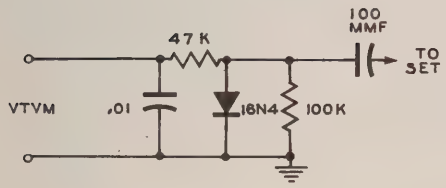


FIG. 4

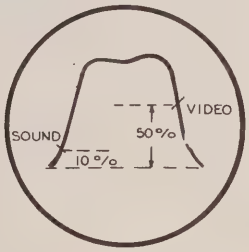


FIG. 5

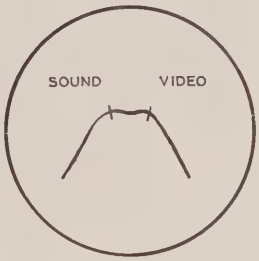
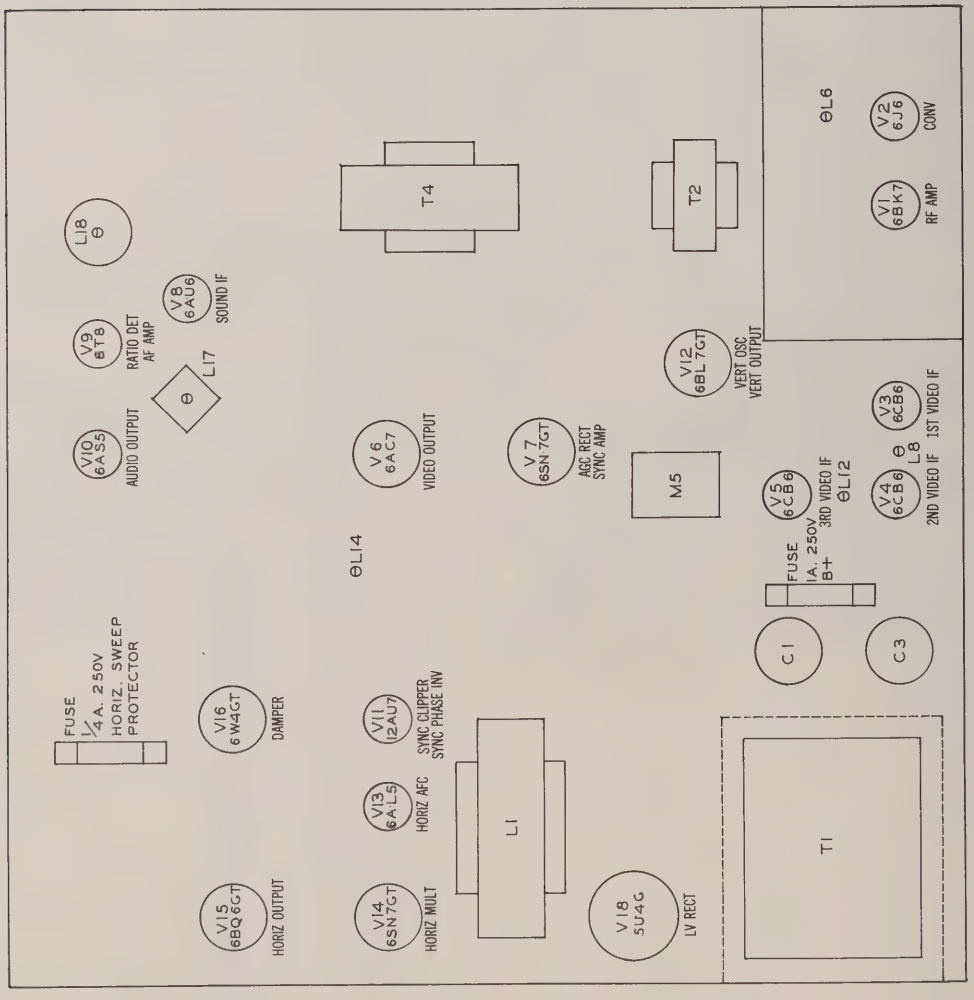


FIG. 6

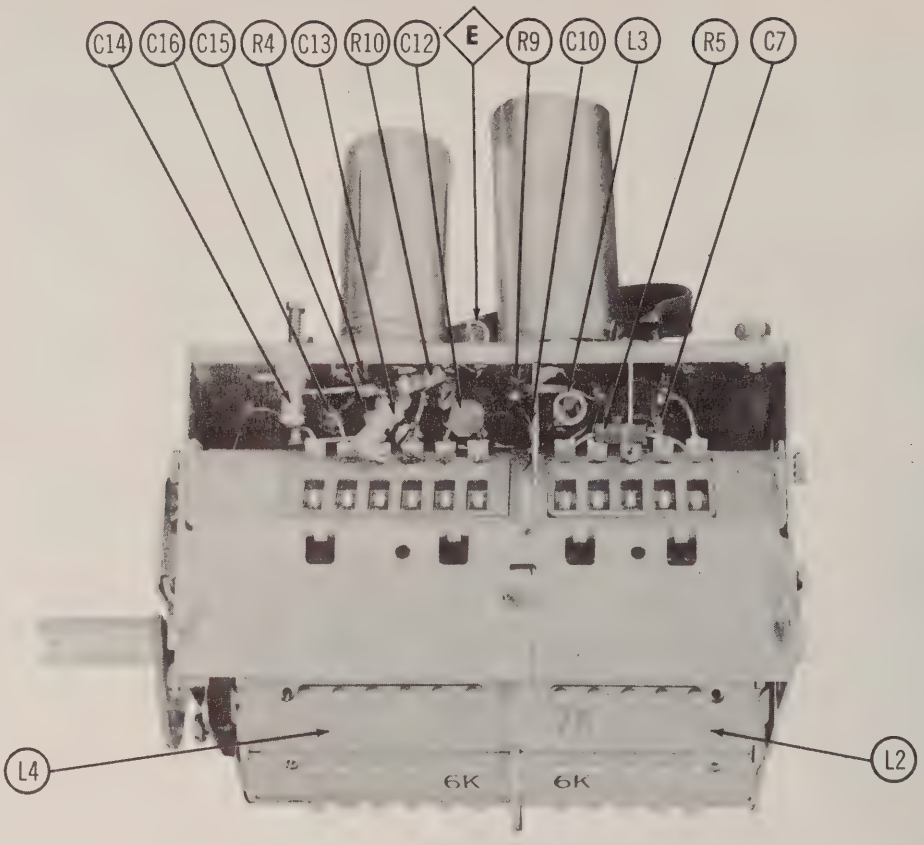
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BK7	INF	615KΩ	0Ω	.1Ω	0Ω	†7.7KΩ	†110KΩ	INF	0Ω
V 2	6J6	■10KΩ	■15KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	580KΩ	68Ω	.1Ω	0Ω	■300Ω	■300Ω	0Ω		
V 4	6CB6	580KΩ	47Ω	.1Ω	0Ω	■200Ω	■200Ω	0Ω		
V 5	6CB6	.2Ω	100Ω	.1Ω	0Ω	■100Ω	■100Ω	0Ω		
V 6	6AC7	0Ω	0Ω	450Ω	1 Meg	450Ω	■0Ω	.1Ω	†4.1KΩ	
V 7	6SN7GT	8.2KΩ	8.2KΩ	100Ω	2.2Meg	■68KΩ	0Ω	0Ω	.1Ω	
V 8	6AU6	■470KΩ	■680Ω	.1Ω	0Ω	†5.4KΩ	†5.4KΩ	■762Ω		
V 9	6T8	INF	22KΩ	INF	.1Ω	0Ω	0Ω	0Ω	10Meg	■470KΩ
V 10	6AS5	60KΩ	400KΩ	.1Ω	0Ω	400KΩ	†673Ω	†1.1KΩ		
V 11	12AU7	†680KΩ	■0Ω	■270KΩ	0Ω	0Ω	†12KΩ	†680KΩ	■3.9KΩ	.1Ω
V 12	6BL7GT	2.2Meg	#6.2KΩ	1.3KΩ	2.5Meg	#2 Meg	0Ω	0Ω	.1Ω	
V 13	6AL5	27KΩ	27KΩ	0Ω	.1Ω	4.8 Meg	0Ω	4.8Meg		
V 14	6SN7GT	5.1Meg	†3.4KΩ	1.5KΩ	100KΩ	†220KΩ	1.5KΩ	.1Ω	0Ω	
V 15	6BQ6GT	INF	.1Ω	INF	†12KΩ	470KΩ	470KΩ	0Ω	100Ω	Top Cap #36Ω
V 16	6W4GT	INF	INF	110KΩ	INF	†76Ω	110KΩ	#0Ω	#.1Ω	
V 17	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								Top Cap #311Ω
V 18	5U4G	INF	14KΩ	INF	20Ω	.1Ω	22Ω	INF	14KΩ	
V 19	21AP4	.1Ω	60KΩ	Pin 10 #0Ω	Pin 11 230KΩ	Pin 12 0Ω				

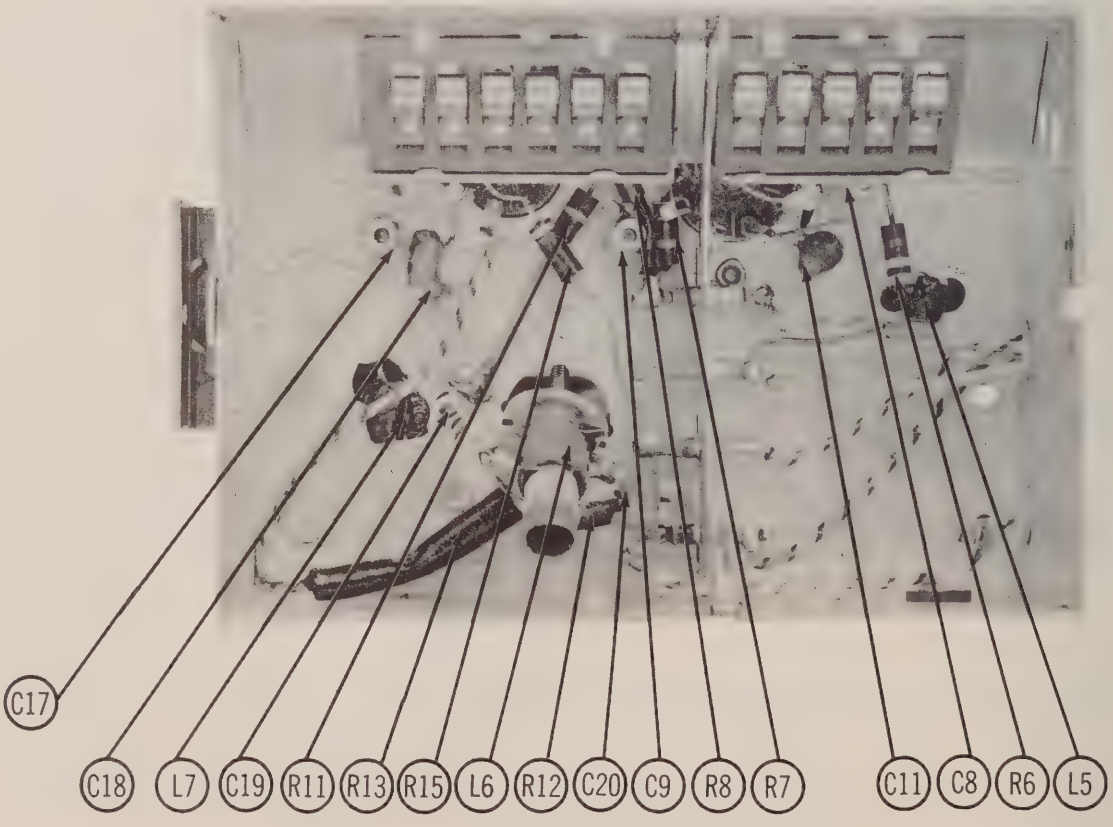
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V18
# MEASURED FROM PIN 3 OF V16
■ MEASURED FROM 140 VDC LINE



TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

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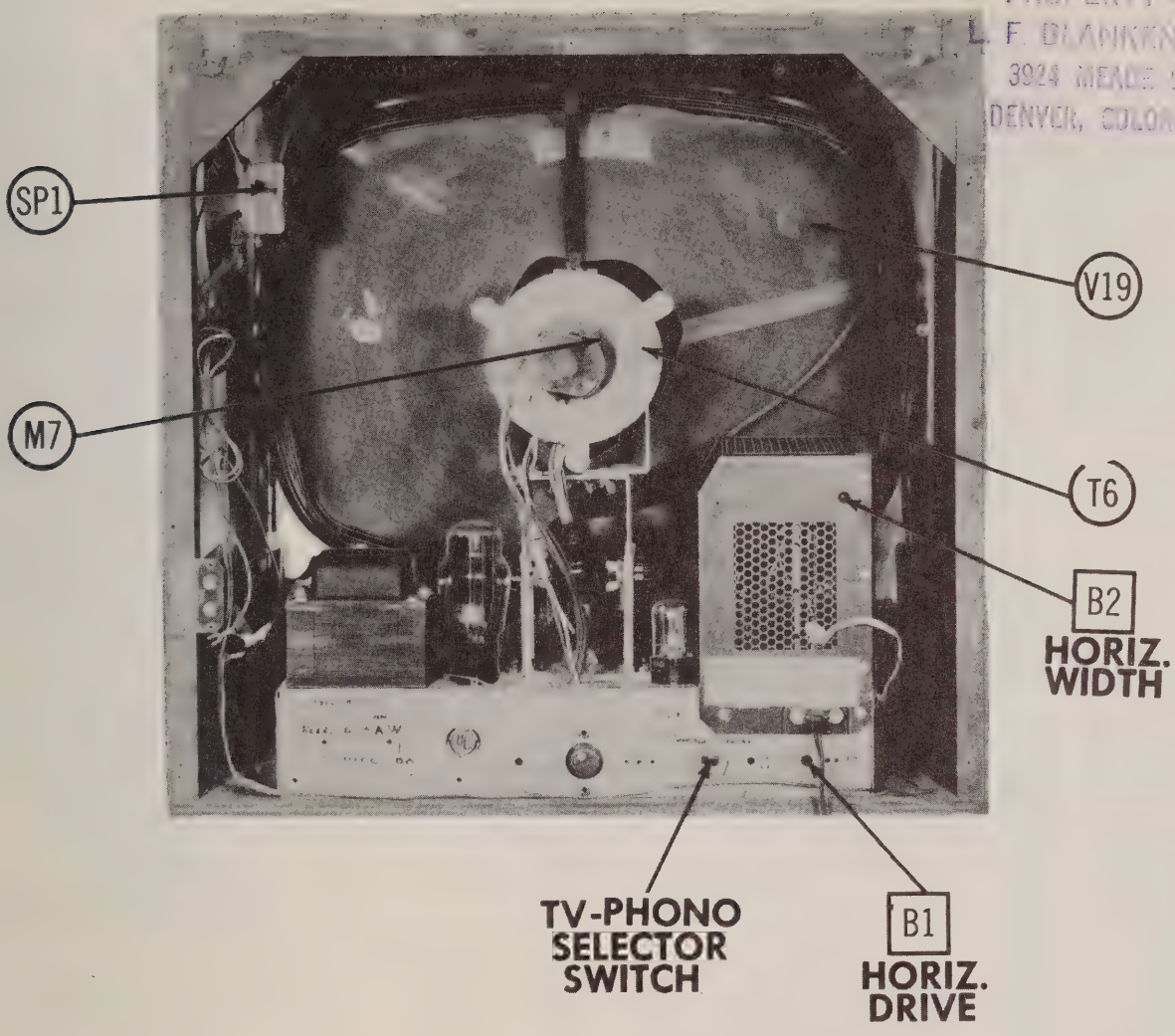
3924 MEADE ST
DENVER, COLORADO



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Adjust the horizontal hold until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer (B1) counter clockwise as far as possible without crowding or vertical white lines appearing in the picture.

Adjust the width slug (B2) until the picture is slightly wider than enough to fill the picture mask horizontally.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Remove 7 wood screws. Remove rear cover.
3. Disconnect built-in antenna, speaker.
4. Remove 2 wood screws. Remove antenna bracket.
5. Remove 2 peaker nuts. Remove speaker.
6. Remove 5 chassis bolts. Remove chassis.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Stewart-Warner PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6BK7	6BK7	9AJ	
V2	Converter	6Z8	6Z8	7BF	
V3	Int. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	6AC7	6AC7	8N	
V7	AGC Rectifier - Sync Amplifier	6SN7GT	6SN7GT	8BD	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Det. -AF Amp	6T8	6T8	8E	
V10	Audio Output	6A35	6A35	7CV	
V11	Sync Clipper - Sync Phase Inv.	12AU7	12AU7	8A	
V12	Vert. Oscillator - Vert. Output	6BL7GT	6BL7GT	8BD	
V13	Horiz. AFC	6AL5	6AL5	6BT	
V14	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V15	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V16	Damper	6W4GT	6W4GT	4CG	
V17	HV Rectifier	1B3GT	1B3GT	3C	
V18	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: Stewart-Warner PART No.	SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V19	21AP4	21AP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	VOLT	REPLACEMENT DATA: Stewart-Warner PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	±40	450	509001	AFH3-43		UPT44145		FP378.8	TVL-3785	Note 1
B	±40	450								Note 1
C	±10	450								Note 1
C2	40	300	160095	PRS450/40		BH4035		TC78	TVA-1511	
C3A	±80	200	509003	AFH3-142		UPT10025-V15		FP375	TVL-3722	
B	±100	50								
C4	10	600	506880	PRS700/10		BH1V810		TC82	TVA-1955	Note 2
C5	10	150	505174	PRS150/12		BR1015		TC42	TVA-1406	
C6	4	200	520642	PRS250/4		BR425		TC50X	TVA-1501	Note 3
C7	2.2		513001		TCZ-2.2		NP0K-2R2		5TCCB-V22	
C8	3-9		509064		829-10					
C9	.5-3		507968		829-3		CT565A			
C10	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C11	1000		513009	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C12	120		513439	SII20	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C13	100		513440	SI100	D6-101	TM5T1	GP1K-101	UC-5311	5GA-T1	
C14	.5-3		507968		829-3		CT565A			
C15	20		513441	SI20NP0	TCZ-20		NP0K-200	ZT-542	5TCC-Q2	
C16	10		513446	SI10N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C17	.5-3		509063		829-3		CT565A			
C18	1000		513009	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C19	10		513444	SI10NP0	TCZ-10		NP0K-100	ZT-541	5TCC-Q1	
C20	120		513029	SII20	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C21	1000		513009	SII000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C22	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C23	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C24	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C25	82		513016	SI82			GP1K-820		5GA-Q82	
C26	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C27	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C28	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C29	82		513016	SI82			GP1K-820		5GA-Q82	
C30	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C31	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C32	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C33	.1	200	512033	PZ58-1	DF-104	PT2P1		PT401	5TM-P1	
C34	47		513438	SI47NP0	TCZ-47		NP0L-470	ZT-5447	5TCC-Q47	
C35	.1	400	512035	P488-1	DF-104	PT84P1		PT401	4TM-P1	
C36	82		513016	SI82			GP1K-820		5GA-Q82	
C37	1000		513009	SII000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C38	.25	200	512045	P488-25		P2J25		PT425	2TM-P25	
C39	2.2		513001		TCZ-2.2		NP0K-2R2		5TCCB-V22	
C40	47		513002	SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C41	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 4
C42	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C43	5000		1513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C44	1500		513010	SII500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C45	1500		513010	SII500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C46	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C47	.05	200	512027	P288-05	DF-503	P2S5		PT415	2TM-S5	
C48	.005	600	512007	P688-005	D6-502	PTE5D5	GP2-333-502	PT625	6TM-D5	
C49	.005	600	512007	P688-005	D6-502	PTE5D5	GP2-333-502	PT625	6TM-D5	
C50	270		513006	SI270	D8-270	5WST3	GP2K-271	UC-5327	5GA-T27	
C51	.01	400	512031	P488-01	DF-103	PT84S1	GP2-333-103	PT431	4TM-S1	
C52	.005	600	512007	P688-005	D6-502	PTE5D5	GP2-333-502	PT625	6TM-D5	
C53	270		513006	SI270	D8-271	5WST3	GP2K-271	UC-5327	5GA-T27	
C54	.01	600	513013	P688-01	D6-103	PTE5S1	GP2-333-103	PT631	6TM-S1	
C55	.05	400	512029	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C56A	.01			P688-01	DD-103	PTE5S1	/821-01	PT631		
B	.002		★508062	P688-002	†★PC-100	PTE5D2	†★ 1405-01	PT632	★6HK-S1	
C	.005			P688-005		PTE5D5		PT625	101C1	
D	.005			P688-005		PTE5D5		PT625		
C57	4700	1000	512533	1464-005		1DR5D5		MCB465	MS-25	
C58	.02	600	513019	P688-02	DF-203	PTE5S2		PT632	6TM-S2	
C59	.05	600	513306	P688-05	DF-503	PTE5S5		PT635	6TM-S5	

PARTS LIST AND DESCRIPTIONS

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	VOLT	REPLACEMENT DATA: Stewart-Warner PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C60	.1	300	512037	P288-1	DF-104	PTE6P1		PT611	6TM-P1	
C61	.05	300	512027	P288-05	DF-503	P2S5		PT415	2TM-S5	
C62	.03	300	512019	P288-03	DF-303	PTE6S3		PT613	6TM-S3	
C63	.05	600	512031	P688-05	DF-503	PTE5S5		PT615	6TM-S5	
C64	.001	600	512001	P688-001	D6-102	PTE5D1	GP2L-102	PT621	6TM-D1	
C65	.001	600	512001	P688-001	D6-102	PTE5D1	GP2L-102	PT621	6TM-D1	
C66	.01	200	512009	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C67	.05	800	512031	P688-05	DF-503	PTE5S5		PT615	6TM-S5	
C68	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C69	.05	200	512027	P288-05	DF-503	P2S5		PT415	2TM-S5	
C70	3900	500	512540	1464-004		1DR5D4		MCB464		
C71	390	500	512535	1469-0004		SR5T4		MCB343	MS-34	
C72	.25	600	512049	684-25		PTE6P25		PT6025	6TM-P25	
C73	390	500	512535	1469-0004		SR5T4		MCB243	MS-34	
C74	1000	500	512515	1468-001	D6-102	1W5D1	GP2L-102	MC855	1TM-S1	
C75	.05	600	512031	P688-05	DF-503	PTE5S5		PT615	6TM-S5	
C76	.25	200	512045	P488-25		P2J25		PT4025	2TM-P25	
C77	.25	200	512045	P488-25		P2J25		PT4025	2TM-P25	
C78	.01	600	512015	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	Note 5
C79	56	1500	513027							
C80	5.1	1500	513026							
C81	500	20000	508888	HV20C	TV5-502	MM-C20TS	413-501	HV-20035	20DK-T5	
C82	500	20000	508888	HV20C	TV5-502	MM-C20TS	413-501	HV-20035	20DK-T5	
C83	5000		513013	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C84	.01	400	512255	489ZGXY-01		PJ4S1		PT411	4TM-S1	
C85	.01	400	512255	489ZGXF-01		PJ4S1		PT411	4TM-S1	

Note 1. This unit used when letter "E" is not included in series designation. When letter "E" is included C1C becomes 40MFD and is relocated. (C1, 40-40-40MFD unit part # 520434) (See Note 2 and partial schematic)
Note 2. When letter "E" is included in series designation C4 becomes a dual unit 10MFD and 20MFD (Part #520641). The additional section replaces C1C. (See Note 1 and partial schematic).
Note 3. This unit used when letter "D" is included in series designation.
Note 4. This unit is not used when letter "D" is included in series designation.
Note 5. This unit becomes .02MFD (Part #512018) when letter "A" is included in series designation.
★ Items C56A, C56B, C56C, C56D, R50A, R50B, R60C are combined in one unit.
† DD-103 in series with PC-100 input lead replaces original unit.
¶ ★ 821-01 in series with 1405-01 input lead replaces original unit.
¶★ 5HK-S1 in series with 101C1 input lead replaces original unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: Stewart-Warner PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	100KΩ	½	509893	Q11-128	AG-49-5	AB-40	U-41	Brightness
B	Shaft		Not Req.	Not req.	RS-3/16	AK-4	Not Req.	Attach to R1A
R2A	2.5Meg	½	508823	QJ-223 *	RTV-313		UF255L	Height -panel
B	1Meg	½					UR16L	Vert hold-rear
R3A	10KΩ	4	509902		RTV-342			Focus-wire wound-panel
B	5KΩ	½						Vert linearity-rear
R4A	750Ω	2	520282	QJ-341 **			W7751	Contrast-wire wound-panel
B	1Meg	½					UR16-T25	Volume-tapped ⑤ 200KΩ-rear
C	Switch						US-25	Attach to R4B

* CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B11-239 & P1-112 (Panel) B11-137 & R1-115 (Rear)
** CONCENTRIKIT EQUIVALENT-KIT K-3, BASE ELEMENTS & SHAFTS W17-105 & P3-131 (Panel) B13-137X & R1-526 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: Stewart-Warner PART No.	IRC PART No.	NOTES
R5	22KΩ	½	510160		
R6	47KΩ	½	510167		
R7	220KΩ	½	510179	BTS-220K	
R8	1000Ω	½	510137	BTS-1000	
R9	180KΩ	½	510177	BTS-180K	
R10	4700Ω	½	510148	BTS-4700	
R11	220KΩ	½	510179	BTS-220K	
R12	15KΩ	½	510158	B8T-15K	
R13	10Ω	½	510101		
R14	10KΩ	½	510154	BTS-10K	
R15	10KΩ	½	510154	BTS-10K	
R16	12KΩ-5%	½	510732		
R17	68Ω	½	510116		
R18	390Ω	½	510129	BTS-390	
R19	10KΩ	½	510154		
R20	47Ω	½	510112		
R21	100Ω	½	510119	BTS-100	
R22	100Ω	½	510119	BTS-100	
R23	5600Ω	½	510150		
R24	100Ω	½	510118	BTS-100	
R25	56KΩ	½	510166	BTS-560K	
R26	8200Ω	½	510153	BTS-8200	
R27	100Ω	½	510119	BTS-100	
R28	1 Meg	½	510191	BTS-1 Meg	
R29	18KΩ-5%	½	510745	BTS-18K-5%	
R30	4000Ω	5	510753	1 3/4A-4000	
R31	10KΩ	½	510154	BTS-10K	
R32	470KΩ	½	510184	BTS-470K	
R33	470KΩ	½	510184	BTS-470K	
R34	22KΩ	½	510160	BTS-22K	
R35	2200Ω	½	510142	BTS-2200	
R36	18KΩ	½	510159		
R37	470KΩ	½	510184		
R38	82Ω	½	510117	BTS-82	
R39	4700Ω	½	510149	BTA-4700	
R40	680Ω	½	510134	BTS-680	Note 2
R41	220Ω	½	510124	BTS-220	
R42	18KΩ	½	510159	BTS-18K	
R43	220Ω	½	510124	BTS-220	
R44	68KΩ	½	510170	BTS-68K	
R46	22KΩ	½	510160	BTS-22K	
R48	10Meg	½	510197	BTS-10Meg	

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: Stewart-Warner PART No.	IRC PART No.	NOTES
R47	470KΩ	½	510184	BTS-470K	
R48	620KΩ-5%	½	510747	BTS-620K-5%	
R49	680KΩ-5%	½	510746	BTS-680K-5%	
R50	560Ω	½	510150	BTS-560	Note 1
R51	270KΩ	½	510180	BTS-270K	
R52	2.2Meg	½	510192	BTS-2.2Meg	
R53	68KΩ	½	510169	BTS-68K	
R54	270KΩ	½	510180	BTS-270K	
R55	680KΩ	½	510187	BTS-680K	
R56	3900Ω-5%	½	510748	BTS-3900-5%	
R57	680Ω	½	510151	BTS-680	
R58	4700Ω-5%	½	510750	BTS-4700-5%	
R59	27KΩ	½	510162	BTS-27K	
R60A	22KΩ	½		BTS-22K	
B	820Ω	½	★508062	BTS-8200	
C	8200Ω	½		BTS-8200	
R61	2 Meg-5%	½	510769	BTS-2Meg-5%	
R62	100KΩ	½	510768	BTS-100K	
R63	4.7Meg	½	510768	BTS-4.7Meg	
R64	1.5Meg-5%	½	510767	BTS-1.5Meg-5%	
R65	680Ω	½	510151	BTS-680	
R66	2.2Meg	½	510193	BTS-2.2Meg	
R67	580Ω	½	510134	BTS-580	
R68	580Ω	½	510132	BTS-580	
R69	580Ω	½	510132	BTS-580	
R70	100KΩ-5%	½	510751	BTS-100K-5%	
R71	100KΩ-5%	½	510751	BTS-100K-5%	
R72	4.7Meg	½	510195	BTS-4.7Meg	
R73	27KΩ	½	510162	BTS-27K	
R74	4700Ω	1	510348	BTA-4700	
R75	470KΩ	½	510184	BTS-470K	
R76	3300Ω	½	510145	BTS-3300	
R77	1500Ω	½	510139	BTS-1500	
R78	100KΩ	½	510172	BTS-100K	
R79	270KΩ	½	510180	BTS-270K	
R80	680KΩ	½	510187	BTS-680K	
R81	15KΩ	2	510357	BTS-15K	
R82	68Ω	½	510116		
R83	470KΩ	½	510184	BTS-470K	
R84	100Ω	½	510218	BTA-100	
R85	33KΩ	½	510283	BTS-33K	
R86	12KΩ	½	510758	1 3/4A-12K	Note 3

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: Stewart-Warner PART No.	IRC PART No.	NOTES
R87	2700Ω	2	510344	BTB-2700	Note 4
R88	2700Ω	2	510344	BTB-2700	
R89	47KΩ	2	510366	BTB-47K	Note 5
R90	1 Meg	2	510390		

ITEM No	RATING: OHMS	WATT	REPLACEMENT DATA: Stewart-Warner PART No.	IRC PART No	NOTES
R91	600Ω	10	510741	1 3/4A-600	
R92	12KΩ	5	510356	BTB-12K	
R93	12KΩ	2	510356	BTB-12K	
R94	220KΩ	½	510179	BTS-220K	

★ Items R80A, R80B, R60C, C56A, C56B, C56C are combined in one unit.
Note 1. Used when letter "D" is included in series designation.
Note 2. Not used when letter "D" is included in series designation.
Note 3. Used only when letter "A" is incorporated in series designation.
Note 4. Used when letter "C" is incorporated in series designation.
Note 5. Used when letter "E" is incorporated in series designation.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA: Stewart-Warner PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No	NOTES
T1	117VAC @ 1.86A	685VCT @ .250ADC	5VAC @ 3A	6.3VAC @ 8.7A SEC 4 6 3VAC @ 1.12A	520487 509380 ①		P-3078	TP-356	R-39BC	

① Power trans. used when letter A is used in model no.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	SEC.	REPLACEMENT DATA: Stewart-Warner PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	153Ω	940Ω	508076	A-8125	A-3900 ①	TBO-1 ④	A-97X ①	Vert osc. trans. Horiz. output trans.
T3	311ΩTap @ 36Ω @ 9Ω	407Tap ② ,46Ω, 3.2Ω	520489	A-8130 ③	HVO-7 ④			
T4	800ΩTap @ 9Ω		509375	A-8123 ①	A-3037	TBO-5	A-102X	Vert output trans.
T5A	16Ω		115228	DY-8	MFD-70	TY-2	Y-12	Horiz. deflection coils
B	48Ω							Vert. deflection coils
T6	12, 000Ω		163226					Focus coil

① Drill one new mtg. hole.
② Mount on top of chassis.
③ Use with WC-5.
④ Use with MWC-1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	SEC.	DC RES. PRI.	SEC.	REPLACEMENT DATA: Stewart-Warner PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T7	4.3KΩ	3Ω	450Ω	.9Ω	509376	A-3877	A-2930	RO-8-①	S-5X	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: Stewart-Warner PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	8"	PM	3Ω	509398 508174 ①	ET-108 Mod. P8-X	6A15	① 6" speaker used in models 9209C and 9209D.

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA: Stewart-Warner PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L 1	230A	73Ω	2.9HY	508341	*C-2325	C-2921 ①	TR-3300 ①	C-25A

① Drill one new mtg. hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	SEC.	REPLACEMENT DATA: Stewart-Warner PART No.	MERIT PART No.	NOTES
L2	Ant Coil	0Ω	0Ω	520502		Channel 2
L3	RF Choke	0Ω		520514		
L4	RF, Mixer Grid & Osc Coil	0Ω		520522		Channel 2
L5	Fil. Choke	0Ω		520518		
L6	1st Video IF Series	.6Ω		520501	TV-113	Includes slug, part #509062
L7	Fil Choke	0Ω		520520		
L8	2nd Video IF Series	.2Ω		507343	TV-103	Less slug, part #507357
L9	Fil Choke	0Ω		507584		
L10	RF Choke	2.6Ω		507387		
L11	Fil Choke	0Ω		507584		
L12	3rd Video IF Series	.3Ω		507343	TV-102	Less slug, part #507357
L13	Fil Choke	0Ω		507584		
L14	4.5MC Trap	1.8Ω		509603	TV-151	Includes slug & cond. slug part # 507357
L15	Peaking Coil Series	12Ω		508341	TV-185	
L16	Peaking Coil Shunt	15Ω		509342	TV-188	
L17	Sound IF	1.6Ω		509378		
L18	Ratio Det	4Ω	15 CT	509706	TV-110*	Tertiary .3Ω
L19	Fil Choke	0Ω		507584		
L20	Horiz. Osc	85Ω		508867	TV-163	Includes slug, part #508963
L21	Width Coil	1.4Ω		508381	MWC-2	Includes slug, part #507429

* Drill one new mtg. hole.

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

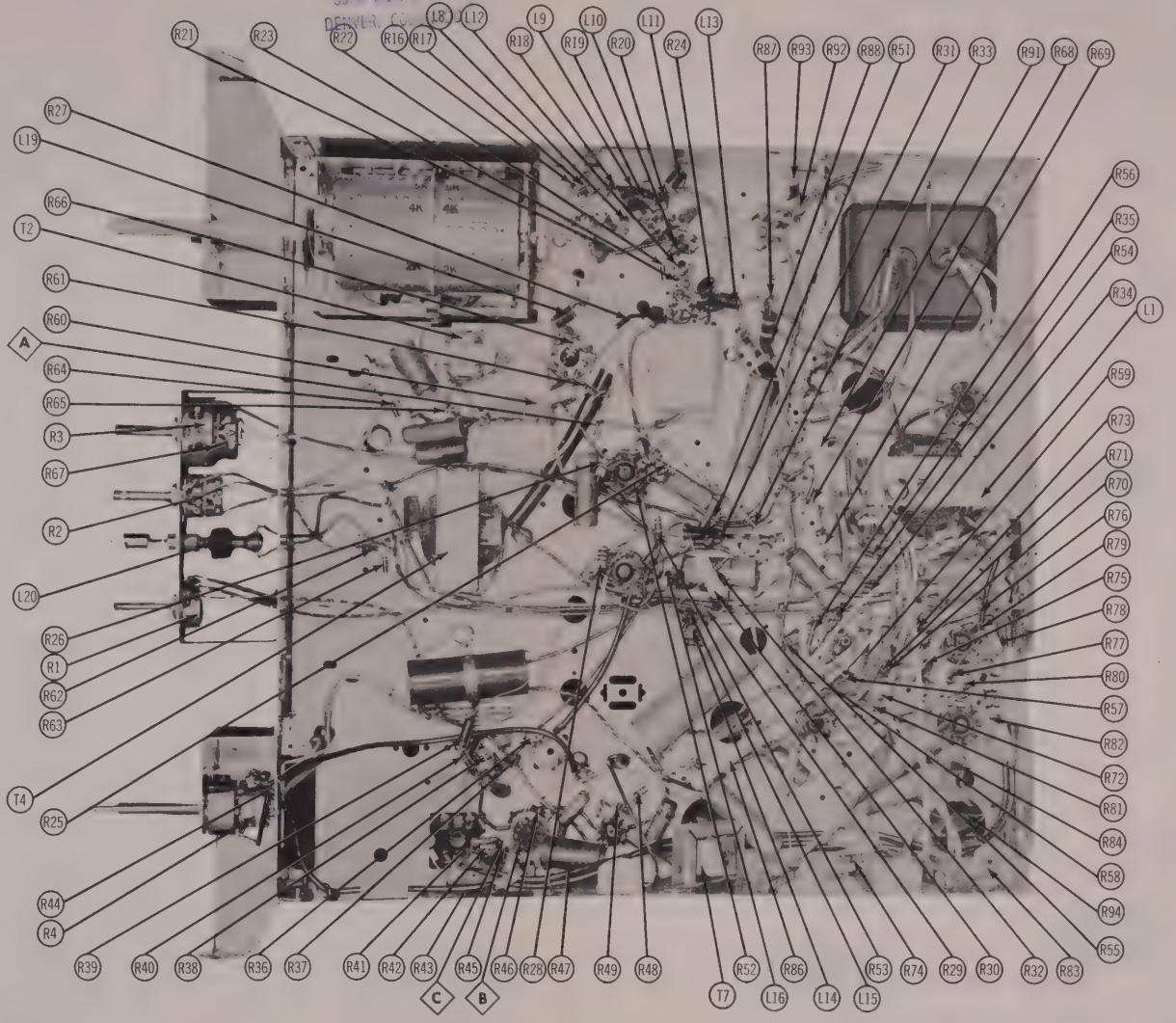
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Stewart- Warner PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3A9 (P/T)	1A 250V	509517		318001		GJV-1A	
M2	GJV	1/4A 250V	508063		318.250 (3AG P/T)		GJV-1/4A	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					Stewart-Warner PART No.		
M3	Bayonet	6-8	.15	Brown	118 921		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	Stewart-Warner PART No.	NOTES
M4	RF Tuner	520450	Complete with tubes
	4th. Video IF Coil	509613	Less Slug
	Capacitor	513016	82MMF
	RF Choke	507367	
M5	Crystal	509386	1N64
	Capacitor	513432	5MMF
	Peaking Coil	509340	
	Peaking Coil	509342	
	Resistor	510153	8.2KΩ
			Video Det. Assy.
M6	Switch	520563	TV-Phono
M7	Ion Trap	509688	
B1	Trimmer	520127	Horiz. Drive (25-280MMF)
	Ant. Coil	520503	Channel #3 (Coded 3K)
	Ant. Coil	520504	Channel #4 (Coded 4K)
	Ant. Coil	520505	Channel #5 (Coded 5K)
	Ant. Coil	520506	Channel #6 (Coded 6K)
	Ant. Coil	520507	Channel #7 (Coded 7K)
	Ant. Coil	520508	Channel #8 (Coded 8K)
	Ant. Coil	520509	Channel #9 (Coded 9K)
	Ant. Coil	520510	Channel #10 (Coded 10K)
	Ant. Coil	520511	Channel #11 (Coded 11K)
	Ant. Coil	520512	Channel #12 (Coded 12K)
	Ant. Coil	520513	Channel #13 (Coded 13K)
	RF, Mixer Grid & Osc. Coil	520523	Channel #3 (Coded 3K)
	RF, Mixer Grid & Osc. Coil	520524	Channel #4 (Coded 4K)
	RF, Mixer Grid & Osc. Coil	520525	Channel #5 (Coded 5K)
	RF, Mixer Grid & Osc. Coil	520526	Channel #6 (Coded 6K)
	RF, Mixer Grid & Osc. Coil	520527	Channel #7 (Coded 7K)
	RF, Mixer Grid & Osc. Coil	520528	Channel #8 (Coded 8K)
	RF, Mixer Grid & Osc. Coil	520529	Channel #9 (Coded 9K)
	RF, Mixer Grid & Osc. Coil	520530	Channel #10 (Coded 10K)
	RF, Mixer Grid & Osc. Coil	520531	Channel #11 (Coded 11K)
	RF, Mixer Grid & Osc. Coil	520532	Channel #12 (Coded 12K)
	RF, Mixer Grid & Osc. Coil	520533	Channel #13 (Coded 13K)
	Knob	509016	Channel Selector
	Knob	509017	Fine Tuning
	Knob	509018	Off/on Volume
	Knob	509019	Contrast
	Back Cover	115238	
	Safety Glass	520476	Models 9209-A and 9209-B
	Safety Glass	520494	Models 9209-C and 9209-D
	Mask	520475-A	Models 9209-A and 9209-B
	Mask	520495-A	Models 9209-C and 9209-D

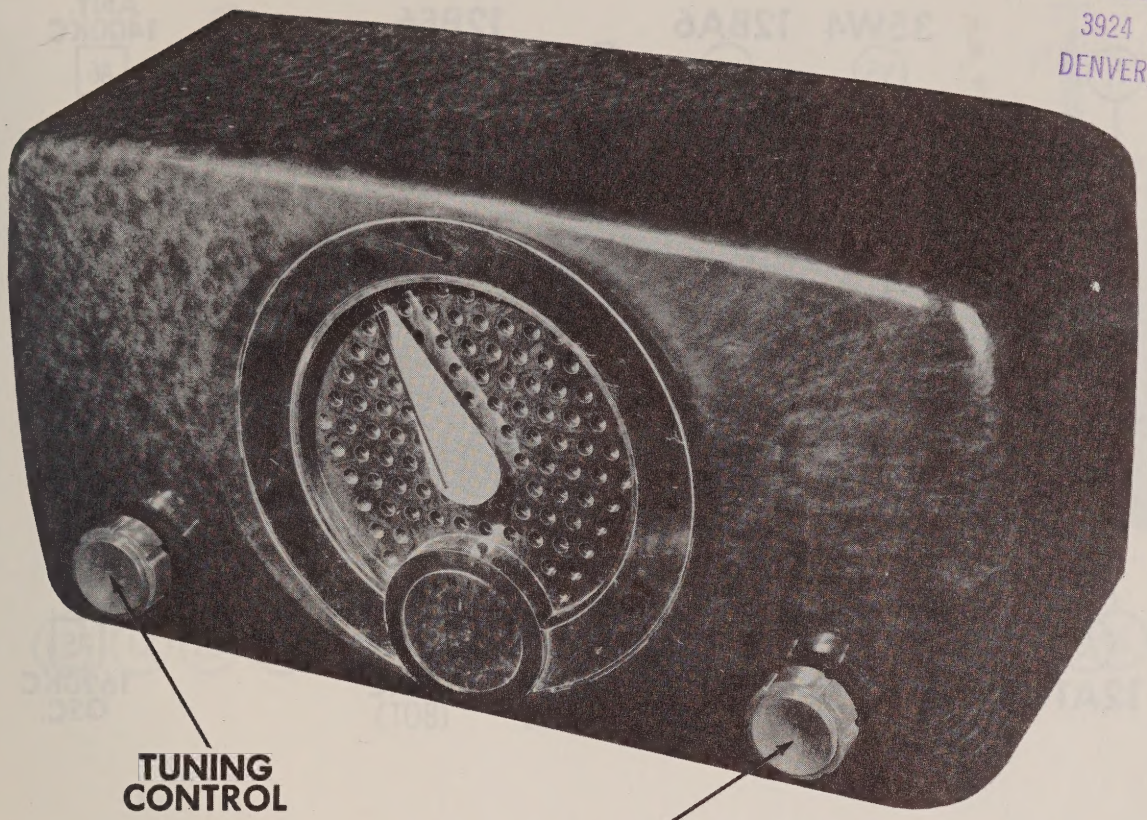


CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

ZENITH
MODELS K510, K510W, K510Y (Ch. 5K02)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

ZENITH
MODELS K510, K510W, K510Y (Ch. 5K02)



ZENITH
MODELS K510, K510W, K510Y (Ch. 5K02)

TRADE NAME	Zenith Models K510, K510W, K510Y (Ch. 5K02)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (FIVE)	Types 12BE6 Conv., 12BA6 IF Amp., 12AT6 Det-AVC-AF Amp, 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC
RATING	.260 Amps. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.5MFD	High side to stator lug of rear section of tuning gang. Low side to B-.	455KC (400~Mod)	Near 600KC	Across voice coil	A1, A2 A3, A4	Adjust for maximum output. isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	Tuning gang fully open.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal	"	A6	"

After alignment replace chassis in cabinet and set pointer so that pointer tip is equal distance above base of cabinet at both extremes of its rotation.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		ZENITH PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det-AVC AF Amp	12AT6	12AT6	7BT	
V4	Audio Ouput	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	60	150	22-2414F	PRS150/50-30		EDL5315		2N520	TVA-2450	Red
B	20	150								Green
C2	.05	200	22-829	P288- 05	DF-503	PJ2S5		PT415	2TM-S5	
C3	110		22-5	SI110						
C4	10000		22-3	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C5A	5000		♦105-28	♦PC-70		♦1406-01		♦ 104C4		Note 1
B	250									Note 1
C										Note 1
C6	.02	400	22-1379	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C7	10000		22-3	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C8	.05	200	22-829	P288-05	DF-503	PJ2S5		PT415	2TM-S5	

Note 1. Some models replace C5 with separate items.
In which case C5A is .01MFD (Part #22-3), C5B is .00047MFD (Part #22-6) and C5C is omitted.
♦ Items C5A, C5B, C5C, R6A, R6B are combined in one unit.
When replacing items separately C5B and C5C should total 250MMF.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1Meg	½	63-2606	Q13-137	AG-63-Z	BSK-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R2	22KΩ	½	63-1842	BTS-22K	
R3	68Ω	½	53-1737		
R4	2.2Meg	½	63-1926	BTS-2.2Meg	
R5	4.7Meg	½	63-1940	BTS-4.7Meg	

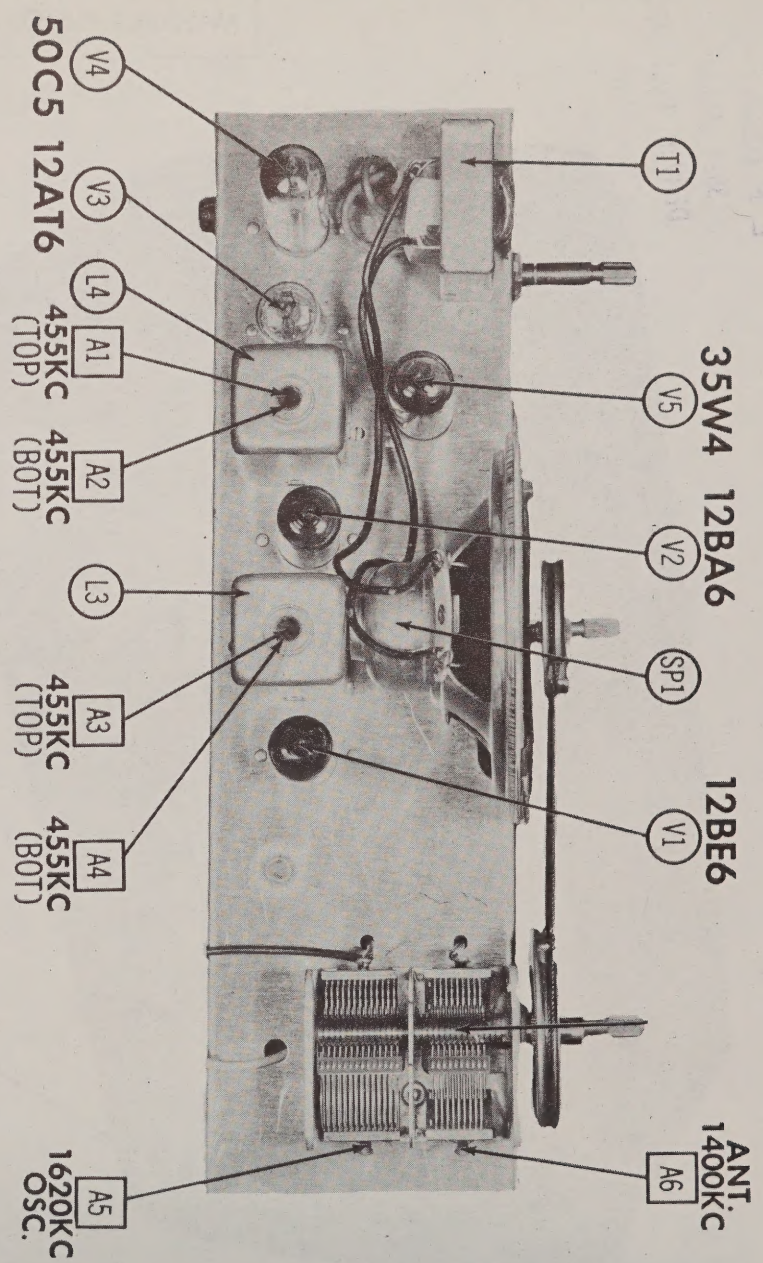
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R6A	500K	½	♦105-28		Note
B	500K	½			
R7	150Ω	½	63-686	BTS-150	
R8	1000Ω	1	63-1574	BTA-1000	
R9	22Ω	1	63-1450		

♦ Items R6A, R6B, C5A, C5B, C53 are combined in one unit.
Note 1 Some models replace R6 with seperate units in which case R6A is 470KΩ & R6B is 470KΩ.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	2.6KΩ	3.3Ω	185Ω	.6Ω	95-1308	A-3876 ①	A-3025 ①	RO-2 ①	S-1X	① Drill one new mtg. hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"		3.3Ω	49-721	ST-113 Mod. P4-X	4A07	

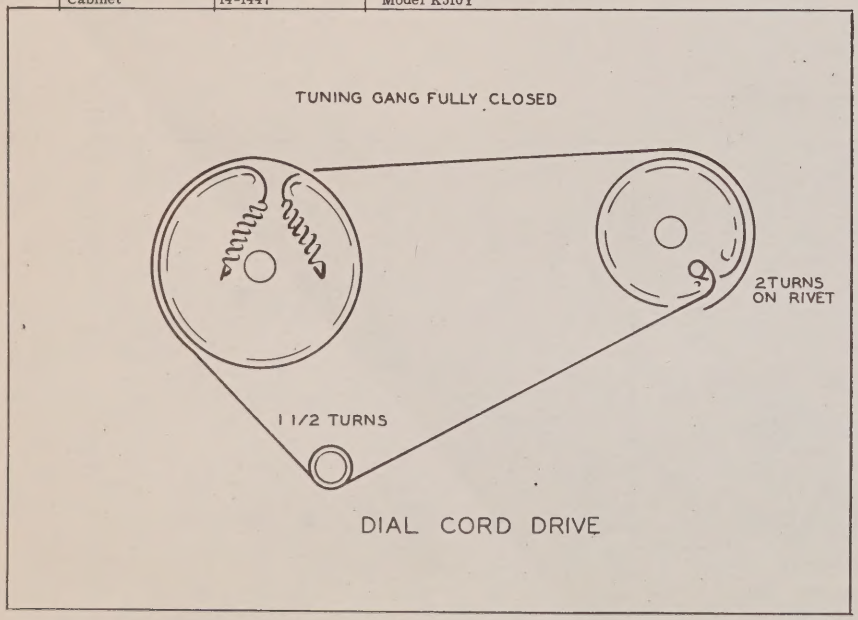
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	ZENITH PART No.	MERIT PART No.	
L1	Loop Ant.	3.4Ω		S-19007		
L2	Osc. Coil	.8Ω	6Ω	S-14842		
L3	Input IF	22Ω	22Ω	95-1101	BC-352 *	
L4	Output IF	22Ω	22Ω	95-1102	BC-355 *	

* Use mtg. plate

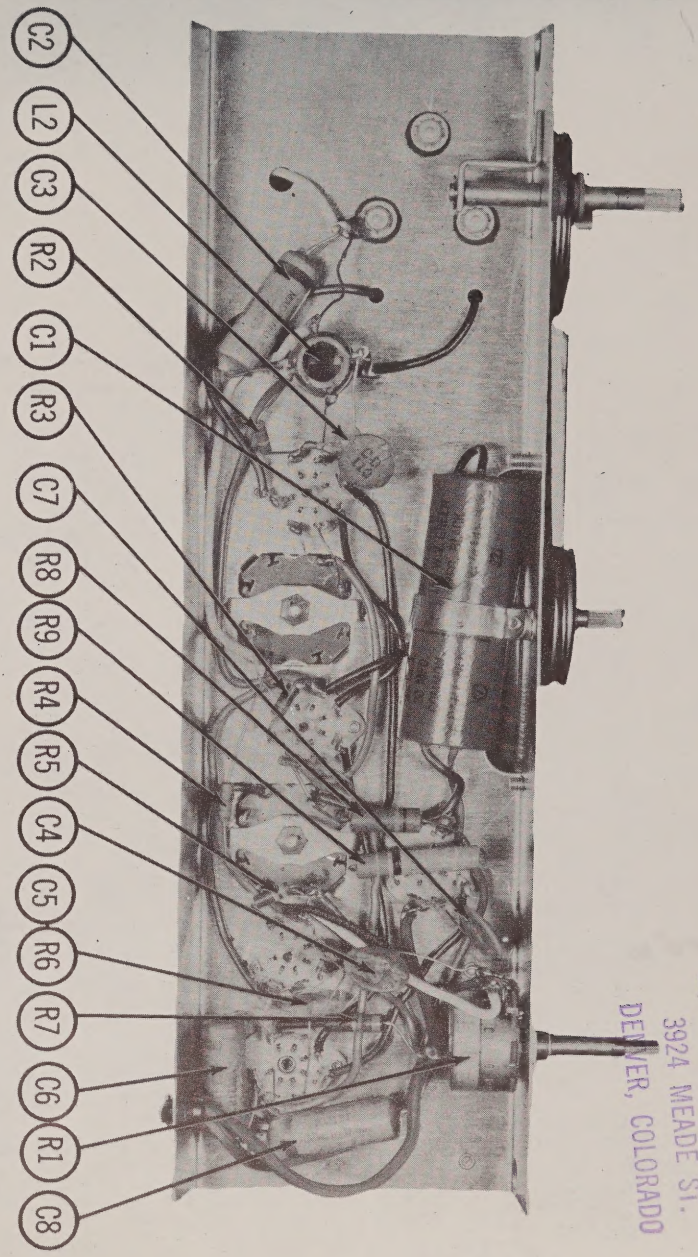
MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M1	2 Gang Var. Cap.	22-2415	(29-470MMF, 26-200MMF)
	Dial Scale	26-473	
	Dial Pointer	59-273	
	Knob	48-860	2 used (Model K510)
	Knob	46-1001	2 used (Model K510W)
	Knob	46-1002	2 used (Model K510Y)
	Cabinet	14-1444	Model K510
	Cabinet	14-1446	Model K510W
	Cabinet	14-1447	Model K510Y



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



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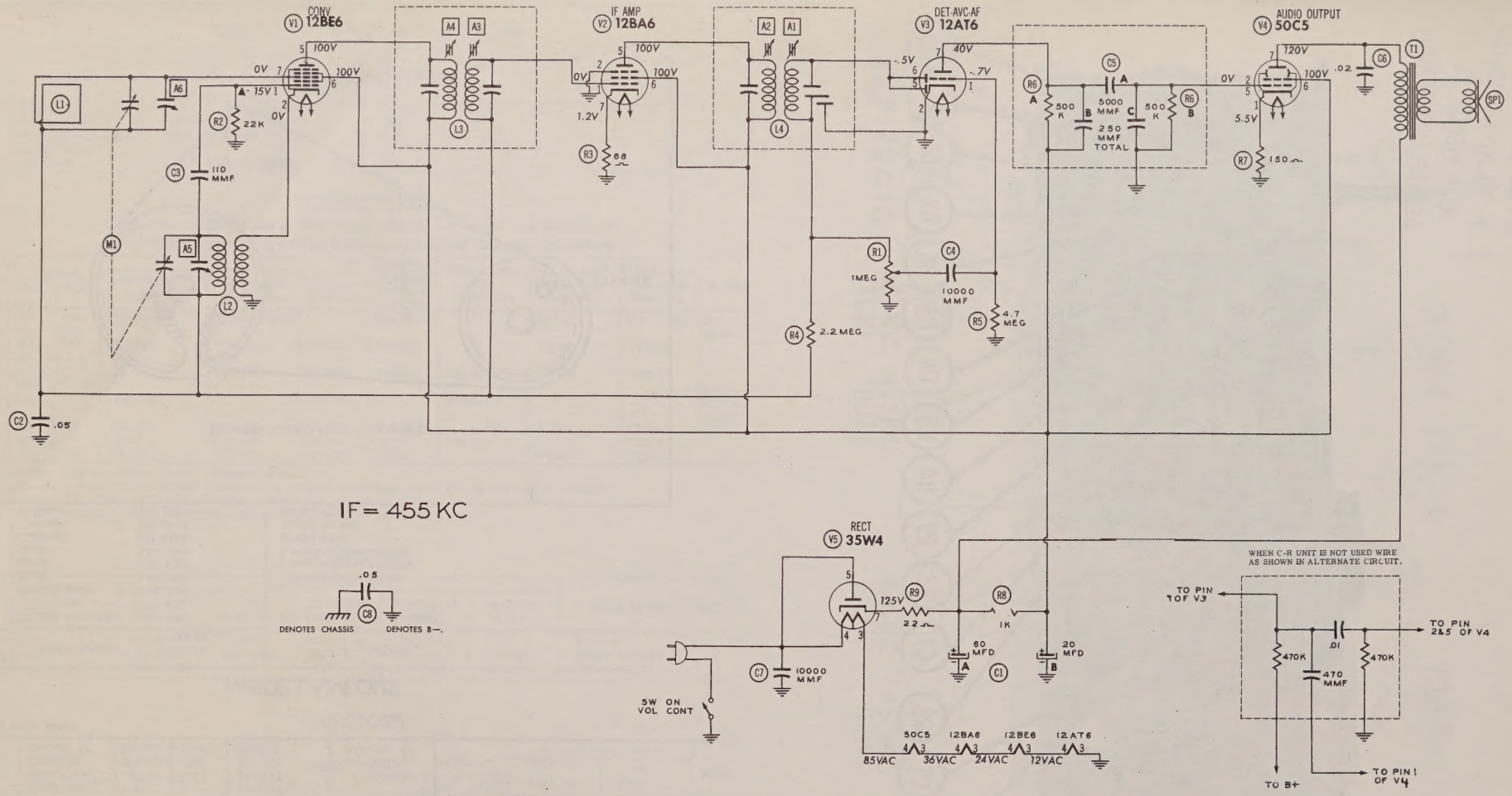
DENVER, COLORADO

ZENITH MODEL K510


V1 CONV 12BE6
V2 IF AMP 12BA6
V3 DET-AVC-AF 12AT6
V4 AUDIO OUTPUT 50C5
V5 RECT 35W4
IF= 455 KC
DENOTES CHASSIS
DENOTES B—
WHEN C-R UNIT IS NOT USED WIRE AS SHOWN IN ALTERNATE CIRCUIT.
TO PIN 1 OF V3
TO PIN 2&5 OF V4
TO B+
TO PIN 1 OF V4
SW ON VOL CONT
50C5 12BA6 12BE6 12AT6
85VAC 36VAC 24VAC 12VAC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.8Ω	12Ω	24Ω	†1KΩ	†1KΩ	3.2Meg
V 2	12BA6	3.2Meg	0Ω	24Ω	36Ω	†1KΩ	†1KΩ	68Ω
V 3	12AT6	4.7Meg	0Ω	0Ω	12Ω	1 Meg.	1Meg	†500KΩ
V 4	50C5	150Ω	500KΩ	36Ω	86Ω	500KΩ	†1KΩ	†207Ω
V 5	35W4	INF	†22Ω	86Ω	121Ω	121Ω	103Ω	40KΩ

† MEASURED FROM PIN 7 OF V5
▲ TAKEN WITH VACUUM TUBE VOLTMETER

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.